IMPACT OF COMMUNICATION TECHNOLOGIES ON THE PERFORMANCE OF SMES IN DEVELOPING ECONOMY: A MODIFIED SOCIAL SHAPING PERSPECTIVE

BY:

IBRAHIM ADENIYI RUFAI

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ABSTRACT

This thesis investigates the impact of Information Communication Technologies (mobile telephony, computer and internet facilities) on the performance of small and medium businesses in Lagos state, Nigeria. It is a mixed-method research involving a firm survey and also a number of semi-structured interviews with firms operating in both the affluent and disadvantaged districts of Lagos. Much of the earlier empirical research and theoretical debate have taken a rather simplistic approach to examining the impact of ICT on socio-economic change by according privilege to either technological or social imperatives in their investigations. This study, guided and largely informed by Donald Mackenzie's Social Shaping Theory (modified) introduces a new concept of 'Symbiotic Interactionism' – which suggests that the relationship between technology and social context/relations is mutually influencing.

The findings lend credence to the idea of a more symbiotic relationship between technology and society as highlighted by the modified social shaping theoretical framework employed in this research. It is argued that as communication technologies positively impact the performance of small and medium firms, existing socio-economic contexts/factors within the communities where the firms operate also influence the choice of communications technology and significantly shape its impact on business performance.

The research findings also suggest that class differences with respect to income and education disparity, as well as communication habits and the state of infrastructural support in the affluent and disadvantaged communities account for different

outcomes in the business performance of firms. The Impact of communication technologies on the local economy seems to be more prominent and significant in regard to the performance of firms operating in the affluent communities where most of the residents/clients are highly educated, 'sophisticated' and financially-buoyant - and when compared to the performance of firms operating in disadvantaged communities characterised by low purchasing power, high levels of illiteracy and weak infrastructural support.

At a theoretical level, the research suggests a refinement and modification of the Social Shaping Theory to accommodate a new concept of 'Symbiotic Interactionism', which connotes a much clearer hybrid of the main ideas of technological determinism and social shaping theoretical perspectives. It is argued that the incorporation of this new concept into the Social Shaping perspective makes the latter more robust, improves its applicability across a variety of situations, as well as helps to deepen understanding of the relationship between technology and society.

The research also raises a number of issues for ICT policy design. In particular, it emphasises the need for creative policy initiatives that would eradicate illiteracy among disadvantaged communities. It is suggested that these types of policy initiatives must encompass basic computer/internet training, information processing and management skills as well as promote more awareness about the potential of ICTs in improving the quality of life. The policy messages should be conveyed in local languages best understood by the target audience for ease of assimilation, and

emphasis should be on imparting requisite knowledge that would make it easier for the disadvantaged/poor communities to be able to exploit the benefits of ICT in order to improve their quality of life. Policy makers also need to be more creative (for example, by providing affordable and alternative computer/broadband facilities) in addressing the digital divide occasioned by a weak infrastructural base and the un-affordability of computer/internet facilities by the disadvantaged communities.

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CHAPTER ONE

Introduction

1.0 Introduction

This thesis examines the impact of Information Communication Technologies (mobile telephony, computer/and or internet) on business performance of small and medium firms. Its aim is to deepen theoretical and empirical understanding of the impact of these communication technologies on the performance of small and medium businesses operating in the affluent and disadvantaged districts of the developing world. An adapted theoretical framework that modifies Donald Mackenzie and Judy Wajcman's Social Shaping Theory is employed to guide the data collection and analysis. This modified theoretical framework is strengthened with a new concept of 'Symbiotic Interactionism', which connotes a much clearer hybrid of the main ideas of technological determinism and social shaping theoretical perspectives, and predicts mutually-influencing interactions between technology and socio-economic contexts.

Most of the previous research efforts that have attempted to explain the relationship between technology and society have adopted theoretical perspectives that are rather simplistic, limited and narrow in scope. A classic example of such perspective is technological determinism, which earlier works by (Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Bailard, 2009; Christopher, 2008; Cronin et. al., 1993; David, et. al., 2005; Diga, 2007b; Gomez, 2012; Jeffrey (cited in Etzo and Collender), 2010; Jenson, 2007; Lydon and Williams, 2005; Okpaku, 2006; Pilat and

Wolfl, 2004; Pyramid Research UK, 2010; Roller and Wavermann, 2001; Samuel et. al., 2007; Thompson and Garbacz, 2007; Wavermann, et. al., 2007; Williams, 2007) seem to have adopted in their ICT impact research endeavours. These studies have made invaluable contributions towards the understanding of the impact of ICT in socio-economic change, but they have only provided one-directional and partial account of the impact of ICT in socio-economic development.

In other words, there has been a paucity of empirical research aimed at developing an understanding of the mutually-influencing, and symbiotic relationship between ICT and the prevailing social context. This thesis therefore sets out with the following strategic objectives:

1. To draw upon Social Shaping Theory (modified) as a theoretical framework to inform an empirical inquiry into the different ways in which ICT and social context influence each other.
2. To examine and explain the influence of differential ICT usage on business performance of SMEs in Lagos state, Nigeria.
3. To use my theoretical findings to inform ICT policy design within Nigeria (and other developing economies) with a view to promoting balanced economic development.

In addition, this introductory chapter provides a brief background on ICT in developing countries. It also examines the ICT policy framework of some third

world nations and presents a critical reflection on their implications. Finally, it outlines the research questions that inform this study.

1.1 ICT in Developing Countries - Background

It is suggested that developing economies can benefit from the potentials of ICT in addressing a whole range of socio-economic concerns (Barlow, 1998; Djamen et. al., 1995; Ashby et. al., 1980). With ICT access facilitation/improvement, Millennium Development Goals of poverty eradication, disease control, universal primary education and gender equality could be tackled.

New ICT media (mobile telephony and internet in particular) have become widespread and are available to a growing number of people worldwide. Total mobile telephony, including fixed wireless penetration in the third world grew by 29 percent from 1991 to 2004 (it was just two percent in 1991, rose to 31 percent in 2004). Adoption and penetration of internet connectivity also grew by 6.7 percent in 2004.

However, there are still disparities among many groups in the developing world with respect to reach, access, and usage of ICT. Factors ranging from cost (many individuals too poor to afford internet or mobile phone), technical ignorance (people lack requisite technical skills to explore benefits from ICT), language (internet content dominance by English language), inappropriate products design (some ICTs not designed to meet the peculiar needs of the rural dwellers/poor) and so on often

constrain the capacity of a sizeable proportion of the population to fully maximise the benefits of ICT.

Countries in the Organisation for Economic Cooperation and Development (OECD) region enjoy highest access to new ICT (Pilat and Wolfl, 2004), followed by South Asian and some African countries. Mobile telephony subscription level in Zimbabwe was 3.5 for every 100 residents in 2004, in comparison to India (4.3), Brazil (36.3) and United Kingdom (102). Although access levels are relatively low in many African countries, the continent was the region with the highest mobile phone growth rate in 2004.

Variations in ICT policies of different governments in the developing countries seem to partly account for differential penetration and growth rate. High import tariff (40%) on ICT equipment in some developing countries like Ethiopia makes it too prohibitive for all but the elite. There is also a monopoly by the public telecom operator in the country's overall telecom services. This however seems to be changing. In China, there was an increase of 61 million in the number of internet subscription in 2004, compared to 33 million recorded in year 2001. The competition among service providers and consumers' increasing desire for online transaction accounted for this increase. The Chinese government viewed the ICT as a driver for economic growth, which gave political impetus for competition to flourish.

In particular, mobile telephony penetration in Africa sub-continent is now reported the fastest in the globe, accounting for over 620 million subscribers, second only to

Asia (Atkearney and GSMA, 2011). Its contribution to socio-economic well-being and business development has been widely noted. According to Jeffrey (2010): cited in Etzo and Collender, (2010), “mobile phones are the single most transformative technology for development” (p.661). It is reported as having capacity to support democratic values in the form of voters’ enlightenment (Aker, Coller and Vincente, 2011), curtail corruption tendencies (Bailard, 2009) and facilitate socio-economic growth and development (Okpaku, 2006).

According to Aker and Mbiti (2010), “As telecommunication markets mature, mobile phones in Africa are evolving from simple communication tools into service delivery platforms. This has shifted the development paradigm surrounding mobile phones from that simply reduces communication costs to one that could transform lives through innovative applications and services”(Aker and Mbiti, 2010, p.208).

However, ICTs in general, and mobile telephony in particular, are also accused of promoting poverty and reinforcing socio-economic disconnection. Puri et. al., (2010) noted instances in some African Millennium villages where dwellers prefer to forgo payment of their children’s school fees in preference for purchasing mobile phones credit. In Ethiopia, the economically disadvantaged 75 percent of the country’s total population with mobile telephony subscription and usage expend about one-third (27 percent) of their wages on it, showing “the continued high cost of services on the continent” (Gillwald and Stork, 2008, p.14). This probably depicts that some individuals believe so much in the socio-economic utility of mobile telephony, and are willing to expend a high proportion of their disposable income for its services.

According to Diga (2007a), a respondent in Uganda was quoted in a study saying "mobile phones bring poverty". In the rural region of the country, Diga (2007b) reported that "One man stated that without a mobile phone, he was missing opportunities for work, as employers would first contact those with mobile phones. The mobile had thus become a necessity for this man involved in a casual labour work" (Diga, 2007a, p.63). In her study, Diga (2007b) also quoted a woman respondent referring to her spouse thus, "he would rather not buy us food but he would rather put airtime on the phone because it is the phone that makes" (Diga, 2007b, p.66). Her study revealed how individuals were not unwilling to forgo certain consumption to enable them invest in mobile telephony for small business development (Diga, 2007b). The above scenario clearly shows that the adoption of mobile telephony, according to Carmody (2012) is sometimes driven by the dialectic of "poverty push/opportunity pull" (Carmody, 2012, p.6).

Fuchs and Horak (2008) state thus "unequal pattern of material access, usage capabilities, benefits and participation concerning ICTs are also due to the asymmetric distribution of economic (money, property), political (power, social relationships), and cultural capital (skills)" (Fuchs and Horak, 2008, p.101). Therefore, impact of ICTs in general and mobile telephony in particular should be analysed and examined in the context of prevailing socio-economic factors and forces which are either strengthened or weakened by them (ICTs). In other words, ICTs or mobile telephony would either serve as tools/catalysts of socio-economic empowerment or instruments of socio-economic domination and exploitation, depending on the context of usage. They embed in the prevailing context of social

support, resource extraction and conflict, and also contribute to reconfigure and reconstitute them (Carmody, 2010).

In spite of the above debate concerning the socio-economic contribution or otherwise of mobile telephony, most arguments in the literature seem to swing towards supporting its positive impacts. For instance, Aker and Mbiti (2010) developed a typology to articulate and explain its impacts on development in Africa: "we identify five potential mechanisms through which mobile phones can provide economic benefits to consumers and producers in Sub-Saharan Africa. First, mobile phones can improve access to and use of information, thereby reducing search costs, improving coordination among agents, and increasing market efficiency. Second, this increased communication should improve firms' productive efficiency by allowing them to better manage their supply chains. Third, mobile phones create new jobs to address demand for mobile-related services, thereby providing income-generating opportunities in rural and urban areas. Fourth, mobile phones can facilitate communication among social networks in response to shocks, thereby reducing households' exposure to risk. Finally, mobile phone-based applications and development projects – sometimes known as 'M-development '- have the potential to facilitate the delivery of financial, agriculture, health and educational services" (Aker and Mbiti, 2010, p.214).

Therefore, it could be argued that Information Communication Technologies are capable contributors to development of the marginalised and neglected communities (Unwin, 2009; Warschauer, 2003). However, the prevailing socio-economic divides

among different communities would need to be addressed to make this a reality. This should go beyond ensuring universal, equal access to ICTs, but also marshalling the machinery of government through policy initiatives to facilitate, enhance and support local capacity for effective usage of ICT tools to achieve socio-economic objectives. According to Toyama (2010), "technology – no matter how well designed – is only a magnifier of human intent and capacity. It is not a substitute".

1.2 Developing Countries' ICT Policy Framework, Implications and Reflections

In view of the perceived socio-economic development potentials of ICT, nation-states (especially in the emerging economies) aspire to ensure appropriate policy direction is conceived and executed to facilitate universal access. Most countries in the third world are now coming to full realization of the need for strategic and overarching policy initiatives to drive their participation in the information era and maximise its attendant socio-economic advantage. Telecom Working Group, an ICT sector development initiative conceived in Asia focuses on issues such as: regional cooperation, human resources development, telecommunication standardisation and technological transfer. ICT diffusion, penetration and usability in every facet of life are also being strategically promoted in Singapore as far back as year 2000.

In Philippines, the enactment of telecommunications law (Republic Act No 7925, S. 1995) which gives legal force to the liberalisation of the telecommunication market, thereby de-monopolizing the telecommunication environment and subjecting it to

market forces signalled a dramatic progress and surge in ICT's diffusion, services and penetration.

Tele-density of line installation reached 9.12 in 2000 as against 2.01 when the law was enacted in 1995. At the same period, mobile telephony penetration grew to a record 99 percent of the population. Also, internet subscription almost tripled in comparison to the previous three years (AC Nielson, 2007). These were complemented by a surge in other public ICT access models such as: telecenters, information kiosks and cybercafé to service provinces and municipalities and other nooks and crannies of the country. Overall, the Philippines government aspires to achieve universal ICT access to all villages by 2015.

However, there seems to be rural-urban imbalance in ICT concentration, access levels, development and penetration in spite of the Government's avowed policy direction and commitment to connect all by villages by 2015. The urban, high-income section of the country enjoys considerable higher ICT uptake than the other parts. What this implies is that development across the country as a consequence of ICT will be greatly uneven.

According to Forestier et. al., (2002) as well as Siochru and Girad, (2005), research finding shows that there will be greater possibility of divergence in income spread naturally, in an environment where the poor, less-privileged section of the society receives less attention compared to the affluent, urban dwellers in terms of ICT infrastructural outlay.

Also, the policy's focus on availability as against usability is likely to have adverse consequence getting necessary results from ICT deployment. People's ability and competence to engage and interact with the web, in meaningful and beneficial manners need to be measured and taken into consideration in policy decisions. The same consideration should be extended to 'content and services' of technology. Value derivable from ICT services would undoubtedly increase patronage and adoption. ICT content and service development to reflect specific target or community group need to be incorporated into policy deliberations.

Issues about this would revolve around which content and services enable socio-economic and political engagement, as well as development, and which web information or online services would attract charges/premium and which would be free.

How relevant are the services and content of ICT to the target? In other words, how could ICT content and services be made relevant and appropriate to specific target? Torero and Von Braun (2006) emphasise the relevance of 'usability' in ICT access. The Private sectors' involvement is an important success factor in any Government's policy consideration. They would need to be encouraged to consider the un-served and under-served in remote areas (especially the rural dwellers) in their ICT services investments and deployment.

Ultimately, the government's policy outlook which seems to be rather 'technology-centric' in design needs to give way to citizens' abilities and reflect varying needs of the communities.

In India, ICT policy conception is informed by the underlying assumption that technology would leapfrog the country into the elite club of advanced knowledge-driven economies. This mindset echoes the United Nations Development Program (UNDP) view that ICT would serve as a veritable tool for third nations to advance and leapfrog to the developed world. There exists a 98-member nations of developing countries' representatives constituted in advisory capacity by the United Nations with a view to realizing developmental potentials of ICT in the third world economies (Singh, 2001).

India's ICT-for-development policy direction received major impetus in 1984 by the Congress Government led by Rajiv Gandhi. An aggressive computerisation project in major sectors of the economy - public, commercial ventures, administrative units to improve efficiency and enable development was initiated.

The enviable place of India among the comity of developing countries could not be denied in terms of its well-established national capacity. However, pressing social needs of the less-privileged majority of its citizenry with respect to education, health, energy, transportation and so on need to be creatively and better addressed with ICT's systems and capacity.

In the West Africa sub-region, Ghana's adopted ICT policy initiative is motivated, among others, by the country's desire to engineer and establish an ICT-driven socio-economic advancement that would galvanise the country's transformation into an enviable middle income, knowledge-based, information-rich, technologically-inclined and competitive economy. The policy statement of intent aims to achieve the following:

- "Creation of a conducive operation environment that would facilitate deployment, utilisation and exploitation of ICTs in its economy.
- Facilitating the nation's human capital capacity development drive and the country's Research and Development potentials to meet ever-changing needs and demands of the economy
- Supporting and facilitating (through deployment and exploitation of ICTs) the re-engineering and modernisation of both public and civil services with a view to achieving major improvements in operational efficiency, effectiveness and service delivery targets" (The Ghana ICT For Accelerated Development Policy, 2003, p.24).

Operationally, the country would strategically exploit ICTs potentials to modernise and overhaul the agricultural sub-sector of the economy with a view to improving agricultural cultivation/yields and developing an active, dynamic export-driven agro-business industry. In education, an overhaul and transformation of the system to provide appropriate training/learning interventions that would guarantee human capital development requirement for the country's information and knowledge-based aspiration as an economy.

In health, ICT would be strategically deployed and positioned to enhance and support health delivery systems related activities and process across the nation.

Kenya's ICT policy conception is an offshoot of its wealth creation, employment opportunities and economic recovery agenda (2003 – 2007). It was conceived in January 2006 by the country's Ministry of Information and Communications. The policy strategically aims at supporting enduring economic growth and poverty alleviation, promote social justice and equity, mainstream gender in national development, encourage empowerment of youth and disadvantaged groups, stimulate investment and innovation in ICT and guarantee achievement of universal access (Ministry of Information and Communication, Republic of Kenya, 2006).

Specifically, its ICT objectives are meant to drive the following:

- Improvement in social welfare of the population: education, healthcare e.t.c.
- Improvement in economic welfare of the population: employment creation, entrepreneurship support e.t.c.
- Improvement in efficiency and quality of public service delivery.

Nigeria's ICT policy initiative approved by the Federal government in March 2001 envisions the participation of organised private sector in strategic partnership with government towards effective realisation of the country's ICT policy initiatives. The government thereafter set up a review committee - Nigerian National ICT for Development – ICT4D Strategic Action Plan to conceive an ICT policy direction that would support national development programmes in the context of rapid

changes in global ICT environment. The ICT4D strategic plan document was midwifed by the Nigerian Information Technology Development Agency (NITDA), an institution charged with the country's ICT implementation and the United Nations Economic Commission for Africa (UNECA).

The reviewed document has a five-year implementation roadmap to drive development in major sectors of the economy – education, health, infrastructure, agriculture, legal/regulations, human capital, private sector/industry, media and community among others (NITDA Website). The policy thrust recognises the need for better, improved access to ICT, coupled with effective application and usage as a prerequisite for maximising the potentials and benefits of globalisation.

Its overarching strategic focus and mission is to engage ICT for education development, wealth creation, poverty alleviation, job/employment creation as well as global competitiveness. The policy's general objectives are as follows:

- "To ensure that Information Technology resources are readily available to promote efficient national development.
- To guarantee that the country benefits maximally, and contributes meaningfully by providing the global solutions to the challenges of the information age.
- To empower Nigerians to participate in software and IT development.
- To encourage local production and manufacture of IT components in a competitive manner.

- To establish and develop IT infrastructure and maximise its use nationwide.
- To promote tourism and Nigerian arts and culture.
- To enhance planning mechanisms and forecasting for the development of local infrastructure.
- To enhance the effectiveness of environmental monitoring and control systems.
- To engineer and improve urban and rural development schemes.
- To empower the youth with IT skills and prepare them for global competitiveness.
- To integrate IT into the mainstream of education and training.
- To create IT awareness and ensure universal access in order to promote IT diffusion in all sectors of our national life.
- To create an enabling environment and facilitate private (national and multinational) investment in the IT sector.
- To stimulate the private sector to become the driving force for IT creatively and enhanced productivity and competitiveness.
- To encourage government and private sector joint venture collaboration.
- To develop human capital with emphasis on creating and supporting a knowledge-based society.
- To create special incentive programs (SIPs) to induce investment in the IT sector.
- To generate additional foreign exchange earnings through expanded indigenous IT products and services.
- To strengthen national identity and unity.

- To build a mass pool of IT literate manpower using NYSC, NDE and other platforms as 'train the trainer' scheme (TTT) for capacity building.
- To set up Advisory Standards for education, working practices and industry.
- To establish appropriate institutional framework to achieve the goals stated above". (NITDA Website, Nigeria National Policy for Information Technology, 2001, p.3-5).

The context within which the Nigeria's ICT4D policy initiative was conceived was to facilitate and support the country's most-cherished socio-economic development aspiration of positioning Nigeria among the elite 20 leading economic superpowers in the globe by the year 2020. But beyond the rhetoric of document, the implementation phase would be a major and critical pointer to potential success, just like any other government's laudable policy pronouncements.

For instance, the evaluation and periodic target monitoring/measurement process is not well-articulated. If, as the document (ICT4D Strategic Action Plan) indicates, the country intends to exploit ICT to drive socio-economic change initiatives towards positioning Nigeria among the 20 leading economic giants of the world by the year 2020, one would expect a clear-cut update evaluation mechanism in terms of achievable and measurable deliverables on year – to –year basis, as well as strategies to address potential performance gaps in implementation phases leading to the year 2020.

Infrastructural support still remains a daunting challenge, especially in the rural areas of the Nigerian society where the majority live. Achieving ICT-driven socio-economic change in such an environment would require even rural-urban infrastructural outlay and political will to address all constraints widening the incidence of digital divide in the rural regions, so as to guarantee a level playing platform in all parts of the country.

The ICT policy conception, and most importantly, the implementation phases need to be more people-oriented and less technology-centric. The vision and strategy should be people-focused. Diverse communities and stakeholders should be co-opted and represented - from policy design to policy implementation, so that implementation (content, language, software design, product and service design e.t.c.) would be reflective of varying socio-cultural contexts and diversity in every section of the society.

Specific ICT needs as identified by different communities that make up the country should inform content, services, and delivery models adopted at implementation. In other words, ICT content design should be community specific, and reflect/address the information and developmental needs of users (as identified by them). Socio-economic context should dictate ICT content, projects and implementation strategies to ensure relevance to targets.

In view of the peculiar socio-economic and infrastructural challenges confronting most developing economies, governments and development agents in those countries

should be more creative in using ICTs to address socio-economic inequalities and engender even development across their nations. It is my suggestion that a public access ICT model or intervention could be an effective option, especially in disadvantaged sections of the country. An example of such intervention is 'EasySeva' – a Sri Lanka-based ICT project conceived to provide affordable broadband wireless telecommunication and internet technology to rural regions of Sri Lanka for the purpose of enhancing the quality of life and improving the economic status of the rural and disadvantaged communities through the usage of ICT. It is a profit-oriented, multiple partnership project designed as a franchising model to empower rural entrepreneurs through establishing and managing village level kiosks franchises that would provide public telephone and affordable internet access to rural dwellers and disadvantaged communities.

Its design and operations are characterised by the following among others:

a. Services provided by the franchises reflect local content and address local needs and wants.
b. Relevant/adequate trainings are provided for the franchise operators.
c. Local communities/dwellers are treated as stakeholders at all stages of the project.
d. Wide consultation with community members was undertaken prior to project statt-up, to determine relevance to meeting local need or desire

e. Most importantly, advanced technology (wireless broadband and VOIP) that could survive peculiar infrastructural challenges and connectivity issues was adopted (Fife, and Hosman, 2007).

Fife and Hosman (2008) also reviewed the operations of 'EasySeva' as a project, and found it to be a success story for disadvantaged communities. Therefore, the EasySeva' model could be considered by governments and ICT policy designers for the disadvantaged districts in the developing economies. However, there must be a political will to see it through, and its design, content and mode of operations would have to be adapted to local context.

1.3 Chapter Summary

This chapter has presented the aims and research questions that inform this study. It has also provided a brief explanation of the empirical and theoretical context of this work. In conclusion, it gave a background to the study and examined some developing countries' ICT policy framework and their implications.

CHAPTER TWO

ICT, Socio-economic Development and Related Issues

2.0 Introduction

The focus of this chapter is to situate the study of ICT impact on business performance of SMEs in Lagos state, Nigeria within a wider context of poverty reduction and socio-economic development initiatives, particularly in the developing world. A literature review presents some relevant empirical and theoretical evidences that attempt to highlight the place of ICT in development debate and SMEs' business performance in particular. The chapter also presents a general critique of major studies, summarises major arguments in the literature and finally establishes the focus of this study.

The key sections covered in this chapter are:

1. Definitions of Concepts: ICT and Poverty
2. ICT and Poverty
3. The Relationships between ICT and Poverty
4. ICT, Poverty and other Related Issues
5. ICT Diffusion, Adoption and Role in Development
6. ICT and Socio-economic Development
7. ICT Impact Studies
8. Public Access to ICT and Third World Development
9. Discussion and Critique of Major Studies
10. Specific ICTs' Impact Studies on SMEs' Business Performance

11. Summary of Main Arguments and Research Focus
12. Chapter Summary

2.1 Definitions of Concepts: ICT and Poverty

"ICTs comprise electronic networks, embodying hardware and software – linked by a vast array of technical protocols" (Mansell and Silverstone, (1996): cited in Catherine, Nyaki (2002)).The United Nations Economic Commission for Africa (ECA, 1999) established that ICTs include internet service provision, telecommunication equipment and services, information technology equipment services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services, and other related information and communication activities.

Drew and Foster, (1994) defined a related concept – IT as "the group of technologies that is revolutionizing the handling of information and embodies a conveyance of interest between electronics, computing and communication" (Drew and Foster, 1994, p.7). According to Duncombe and Heeks (1999), ICTs are described as an "electronic means of capturing, processing, storing and disseminating information" (Duncombe and Heeks, 1999, p.17).

Lok-Dessallien (1999): cited in Catherine, Nyaki (2002) conceptualises poverty in both absolute and relative sense. According to him, absolute poverty means merely existing below the basic and socially acceptable living conditions, while relative poverty is understood on the basis of comparison between the lowest bracket

(probably on earning/income) of a population with the upper bracket. As an object of study, it is open to social investigation from the positivist and interpretive philosophical perspectives.

Poverty is often described in reference to some related concepts: “poverty and vulnerability; poverty and equity/inequity; poverty and exclusion; poverty and underdevelopment” (Lok-Dessallien, 1999, p.9). More often than not, poverty measurement indicators have been subjected to objective analytical approach, with a view to determining what poverty is and how it could be alleviated.

In another sense, poverty according to UNDP, (1997): cited in Catherine, Nyaki (2002) is “not merely in the impoverished state in which the person actually lives, but also in the lack of real opportunity - due to social constraints as well personal circumstances – to lead valuable and valued lives” (p.15). Absence of requisite skills, info-telecommunication and infrastructure are identified by Chowdhury, (2000a) as among the major causes of poverty. The developing world, according to D’orville, (2000) experiences another variant of poverty – information poverty as they struggle with infrastructural support, necessary aptitudes and other pre-requisites.

Heeks (1999): cited in Catherine, Nyaki (2002) attempted to answer the question: “Can information and communication technologies (ICTs) help to alleviate poverty in low-income countries?” He states that ICTs only serve as communication technologies and not as information processing or production technologies. He stated

that development agenda is prioritised in the following order: “the poor need knowledge to access, assess and apply existing information and need resources for action more than they need access to new information; the poor need access to new, locally-contextualised information more than access to existing information from an alien context; the information needs of the poor may be met by more informal information systems than by formal ICT-based systems; the poor will reap the fullest benefits of ICTs only when they know and control both the technology and its related know-how” (p.7).

In other words, understanding the information needs and exchange dynamics of the poor and their interaction with formal and informal information channels would be paramount to any advocacy on ICTs development initiatives among the poor. Also, access to information conveyed by ICT would only have developmental value to the poor if they possess adequate knowledge to process and apply such information in a useful and beneficial manner.

2.2 ICT and Poverty

“The poor are excluded from much of the world’s information and no one has even begun to outline a solution to the problem” (Wresch, 1996, p.58). Is this assertion still true or to what extent is it true and does it still hold in the current circumstance/global experience? Researchers, scholars and development analysts have always expressed contending views with respect to ICTs, poverty, economic development and other related issues. According to Braga (1998), it is a view in

some quarters that ICTs could contribute to increasing economic gap between developed world and developing economies.

In the same vein, Brown (2001) expressed doubt on the potential impact of ICTs in poverty alleviation efforts of the developing countries. Chowdhury (2000): cited in Catherine, Nyaki (2002) supported similar reasoning with respect to scepticism of the probable role of ICTs in poverty reduction initiatives. According to him, “the poor can’t eat high-speed internet access, of course” (p.1).

However, there are those who are optimistic that ICTs do have potentials in facilitating development initiatives in the developing countries. Barlow (1998) suggested that Africa can and should ‘leapfrog’ stages of development (i.e. industrialism) and engage directly in the information revolution era. Expressing the same perspective, Hudson (2001) asserted that the use of wireless terrestrial and satellite technologies has capacity to ‘leapfrog’ developing world into the information era.

2.3 The Relationships between ICT and Poverty

Pigato (2001): cited in Catherine, Nyaki (2002) explored ICTs and poverty in the context of Sub-Saharan Africa (SSA) and South Asia. His aims were to:

- Examine patterns of utilization, ownership and affordability of ICTs within a number of countries in SSA and South Asia.

- Recommend ways by which ICTs can best be used in poverty reduction initiatives.

Empirical data (inclusive of "two surveys of poor urban and rural households in Nepal and India; two surveys of small and medium enterprises (SMEs) in Tanzania and Botswana; and existing case studies of applications of ICTs in rural areas from both SSA and South Asia) on Demographic and Health surveys from 26 low-income SSA and South Asian countries from 1991 – 99" (p.11) were gathered and analyzed.

The findings revealed that: "SSA and South Asia have the lowest ICTs access and there is urban/rural and rich/poor divide" (p.10) within the countries. There was also an increasing demand for information, which was being met. The author recommends a concerted and joint approach to initiate necessary policy instruments of ICTs access and penetration within developing nations.

It is argued by some scholars, Samiulllah and Rao, (2000): cited in Catherine, Nyaki (2002) that ICTs can potentially tackle "rural and urban poverty and therefore engender sustainable development" (p.11). This would however be possible if locally-relevant ICTs in terms of design, content, and language are developed, adapted and positioned to meet the varying needs/desires of rural and urban dwellers. Result-oriented, successful ICTs, as development interventions are possible in a conducive/enabling environment that fosters cooperation between the private sector and NGOs, and allows free information flow/exchange, women's access and capacity building (Samiullah and Rao, 2000).

Chowdhury (2000): cited in Catherine, Nyaki (2002) highlights a perspective expressed by some scholars that ICTs have the capacity and potential to assist the poor in the acquisition of literacy, marketable skills and so on in an emerging global village. He however states that "ICTs do not have any more to do with poverty and food security in the developing countries than rain dances have to do with rain" (p.3,). According to him, poverty reduction challenge is very complex and the contribution/role of ICTs in poverty alleviation and provision of food security in the developing world is yet to be clearly established.

2.4 ICT, Poverty and other Related Issues

Studies examining potential role ICT plays in reducing poverty and acting as catalyst to socio-economic development and growth abound. Empirical data from the developed economies (Cronin et.al., 1993; Roller and Wavermann, 2001;) attempted to demonstrate the influence of ICTs in driving economic growth and advancement. Social investigations demonstrating such impact from the developing world are relatively few, and the digital divide – "the differential extent to which rich countries and poor countries benefit from various forms of IT" (James, 2007, P.284) still exists. Factors responsible for the divide in the developing countries, according to (James, 2007) include infrastructural support constraints (i.e. electricity supply) and lack of access to modern technology (internet, computers or mobile technology).

Easterly et. al., (1994), and Baroo (1997) in endogenous growth theory highlights the concepts of technology and human capital as very central to economic development. They stated that the presence of technology and human capital is central and very

essential to a country's development and continuing economic growth. Technologically-inclined, capable workforce with necessary education is likely to be more productive than those who are not.

De Silva and Zainudeen (2007) examined the social impact of ICT (telecommunication) in the developing world. They concluded that the usage of ICT in facilitating social bond that enables people to keep and sustain family ties improves quality of life.

2.5 ICT Diffusion, Adoption and Role in Development

The ICT's role in improving socio-economic development has been well noted in numerous literatures (Brynjolfsson and Hitt, 1995; 2000; Nair et. al., 2005; 2008). OECD countries as well as other emerging economies such as Korea, Ireland and Finland have benefitted from increase in labour productivity and high economic growth as a result of ICT's diffusion and usage (Pilat and Wolfl, 2004).

Research on ICTs diffusion shows that demographic and socio-economic variables such as age, education, income, ethnicity, complexity of ICTs and social networks are some of the drivers for the adoption and usage of new technologies (Rogers, 2003). Schmitt and Wadsworth (2002) established a link/connection between personal computers inequality and variables/factors as income, education, age, family type and race from their analysis of the US Consumer Expenditure Survey and the British General Household Survey.

They examined the trend and pattern of computer ownership in the two countries from 1980s through the 1990s. Their finding was somewhat corroborated by Batte (2005). Computer usage patterns among farmers from America's state of Ohio – as revealed in a sample size of 2,500 selected at random showed that larger farms, farmers with higher education, and younger ones are more favourably disposed to computer adoption and usage.

Nair (2010) investigated the Determinants of Digital Divide in Rural communities of Malaysia. The objective was to examine socio-economic factors that influence computer usage in typical rural agricultural and fishing settings in a developing country. Four communities comprising government-assisted land schemes, privately-owned plantations, traditional agricultural community and fishing villages were selected as sample from rural population of the country for the purpose of the study. Survey method, through the use of questionnaire, was employed as a research instrument to measure computer usage patterns of a randomly- selected respondents from the sample. It was established that access to computers, ethnicity, education, language of communication, gender, social network (encourage from peer family and teachers), age among others are key factors driving usage in the sample population. It was concluded that people were not making use of computers in rural communities of developing world due to prohibitive cost of computers, low computer literacy, and lack of interest/relevance to rural dwellers.

Zhao, et. al., (2006) examined two rural towns of China's Gansu province – Jinta and Yellow Sheep River with respect to their internet diffusion and usage patterns. Their

objective was to explore the applicability of the diffusion of innovation theory to internet development in rural China. The internet projects in the two communities that constituted the population for the study were the initiatives of a Taiwan-based company and the local government. The study adopted an ethnographic design to examine the diffusion of innovation theory in the context of internet adoption and usage patterns in a typical rural China setting.

Their result questioned the fundamental assumption of diffusion theory. The finding showed that rural China lacked strong local economic base and requisite infrastructure support to sustain internet technology. Initiatives by development agencies are what drive technology penetration and adoption, not individual effort or determination (Zhao, et. al., 2006). Diffusion of technology in such context would largely depend on institutional efforts more than individuals' will.

2.6 ICT and Socio-economic Development

Scholars in the field of mass communication have always expressed optimism that there is an obvious correlation between communication technologies and socio-economic development. Lucian Pye, Wilbur Schramm, Daniel Lerner and Everett Rogers were strong advocates of the view that media technologies are potent drivers and sine qua non for socio-economic development in developing world.

In other words, every developing nation that aspires to achieve developmental objectives - social or economic would need a certain proportion of media technology. Daniel (1958): in his seminal book 'The passing of Traditional

Societies' cited in Obijiofor et. al., (1999) argued that "No modern society functions efficiently without a developed system of mass media" (P.55).

In the same vein, Lucian (1963): cited in Obijiofor et. al., (1999) observed: "It was the pressure of communications which brought about the downfall of traditional societies. And in the future, it will be the creation of new channels of communication and the ready acceptance of new content of communications which will be decisive in determining the prospects of nation building" (p. 3). It was generally assumed that media technologies carry with them an element of modernity which could transform societies and individuals.

Thereafter, stakeholders, development and communication researchers also observed a potential negative outcome in the correlation between media technology and socio-economic advancement, especially in the developing world. "Throughout the less developed regions, people have been led to want more than they can get. This can be attributed in part to the spread of the mass media, which inevitably show and tell people about the good things of life that are available elsewhere …..As people in the poor countries were being shown and told about ''goodies'' available in developed countries, they were also being taught about their own inferiority …at least in terms of wealth and well-being. Recognition of the disparities between the rich and poor countries produced among some a sense of hopelessness, among others a sense of aggressiveness. Both apathy and aggression usually are counterproductive to genuine development efforts" (Lerner and Schramm, (1976): cited in Obijiofor et. al., (1999), p.341 – 342).

However, arguments still abound linking new communication technologies to socio-economic development of societies. The western world experience of how industrial technology influenced and supported socio-economic growth and development was always a case in point. It is suggested that socio-economic growth and development in developing countries could also be aided by technology. Ashby et. al. (1980): cited in Obijiofor et. al., (1999) stated: "Industry, especially capital goods industry, was viewed as the leading growth sector of the economy. Rural society in low-income countries was viewed as economically stagnant and culturally tradition bound" (P.154).

Oftentimes, rapid, fast and instantaneous information exchange is taken for granted as basic necessity for socio- economic engagements and advancements in the present digital era. McQuail (1987): cited in Obijiofor et. al., (1999), argues that "one clear promise of the new technologies is an increase in communication of all kinds, between individuals and also between persons….". But the ICTs' potential in addressing/tackling poverty incidence in the developing world is still a subject of debate among the intellectuals.

Stevenson (1991): cited in Obijiofor et. al., (1999) contends the possibilities of the new telecommunication technologies as capable and "enough to address the world's most serious problems of poverty, hunger and alienation". For instance, there continues to be a big question mark by some researchers on the ICTs (especially internet) real or imagined impact /role on the development of the developing continent.

Jegede (1995): cited in Obijiofor et. al., (1999) argued: “If we had everyone in Africa electronically networked today, it would not necessarily develop Africa. In fact, what it would do, and appears to be doing at the moment, is divert attention from all other problems of development making people believe that getting hooked to the superhighway is the panacea for Africa’s problems” (P.221).

He continued: “Three quarters of Africa’s population is illiterate (so hooking them to the internet is out of the question); three quarters of Africa is rural without basic facilities of electricity and telephone (so hooking up to the internet can only be restricted to the urban areas);…..and there are currently 200 million personal computers worldwide but less than one percent of them are located in Africa….” (Jegede, 1995: p.221).

Jegede’s assertion (almost two decades ago) may not quite portray the current realities in most African countries, the continent still struggles/lags behind on most, if not all the developmental indicators highlighted. In other words, for ICT as a developmental intervention to hold sway in developing countries, it would need to be preceded and supported by the provision of other developmental priorities such as education and even rural-urban infrastructural support system among others.

Djamen et. al. (1995): cited in Obijiofor et. al., (1999) was however more optimistic in ICTs potential for development. He averred that “Electronic networking will not only enable Africans access global data, but will also help the entire world to access information on Africa in Africa. Thus, the present situation in which Africans do not directly control their own data would be reversed” (p. 228 – 233).

Lomas (1995) also echoed this optimism with respect to the great potential of the internet in facilitating tourism and promoting pacific islands products in a global market. He however voiced a concern on the limited internet access to the people in the Pacific Islands.

New ICTs magical influence on society might not be so dramatic after all. Any expectation/optimism of ICTs powerful socio-economic impact should be argued in the context that ICTs exist in certain social and political setting, and any probable effect/influence they might have on such society is likely to be culturally shaped and moderated. In his view on the process of technological adaptation with respect to the Maori of New Zealand, Schaniel (1988): cited in Obijiofor et. al., (1999) states that "new technology may create change in society, and that the direction of change is determined by the nature and function (use) of that technology in the adopting culture" (p.493 – 498).

2.7 ICT Impact Studies

Does ICT or new media promote and enable socio-economic growth or facilitate general development? Actually, technological imperatives are often accorded pre-eminence in the theoretical and empirical analyses of the impact of technology on socio-economic change. However, this perspective is too simplistic and restricts intellectual discourse in the field to a linear and one-directional argument. In other words, a more robust and balanced perspective would accord due considerations to both technological and social factors in the analyses, in order to enrich our understanding of a more symbiotic relationship between technology and society.

Scholars have shown considerable interest in investigating whether mobile telephony in particular has potentials in facilitating economic growth and social well-being. Such investigations are somewhat similar in focus to previous enquiries on telecommunication and economic development (Norton, 1992; Saunders, Warford, and Wellenieus, 1994).

Studies concerning exploring evidence of causality between ICT spending and firm's productivity have been subjects of intense debate in the literature. Researchers (Brynjolfsson, 1993; Chan, 2000; Dewan and Kraemer, 1998) are contributors to this debate. Some social investigators (Papaioannou and Dimelis, 2007) argued to have discovered evidence of causation between ICT and organisational performance/productivity.

Waverman, Mesch, and Fuss (2005) argued that increase in gross domestic product (GDP) recorded by some less-developed nations with relatively low-income status are direct result of higher levels of mobile telephony penetration. Correlation between mobile telephony and investment has also been found by some researchers.

Lydon and Williams, (2005); Williams, (2007) reported a correlation between mobile telephony penetration levels and inflows of foreign direct investment. Mobile technology has also been found to be a contributor to a much-improved social capital (cohesion) within communities in South Africa and Tanzania (Goodman, 2005).

Jenson (2007) researched microeconomic impact of mobile phone in Indian Fishing community. He studied a sample of fishermen in the country, by tracking sardines'

prices at varying landing ports on Kerala coast over a 5-year period. His findings showed fishermen with access to mobile telephone enjoy significant and instant reductions in price volatility as well as the level of waste in their stock. Empowered with better information, such fishermen could target strategic ports where willing and enthusiastic buyers await their catch.

However, combined usage of mobile telephone technology for business (instrumental) and personal, especially among small business entrepreneurs (Donner, 2004) makes it hard to clearly establish/measure its business impact. Same mobile used for business transaction is often employed to cultivate and strengthen social ties.

A study of small business entrepreneurs in the city of Kigali, Rwanda revealed that two-third of mobile calls were with friends and family rather than to customers or suppliers (Donner, 2005). Developing countries – based studies by (Mutula 2002; Rogers et. al., 2006; Stone, Lynch, and Poole, 2003; Whattananarong, 2005) all argued that the relative affordability, simplicity and portability of mobile telephone technology make it more suitable for education service programmes in settings where personal computers and internet access are difficult to find.

Mobile phone technology has also been found to be very handy in emergency situations. Nigerian physicians employ it as a communication tool/device to link/contact one other across different sections/departments of a large health facility. It is also used as a viable emergency response tool when they are offsite (Ogunbodede, 2003).

Also, in a survey study on 'Economic Impact of Telecommunication on Rural Livelihoods and Poverty Reduction' commissioned/funded by the British Department for International Development Knowledge and Research Programme (2005), David et. al. researched the telephone behaviour of rural communities of India, Mozambique and Tanzania. The aim was to learn more about the impact which telephone usage is having on the livelihoods of telephone users in the developing countries. Major findings of the study established among others that: telephone comes very handy and valuable in emergency situations and is a very important asset to maintain social network/family ties, it is more valued as money saving technology than money earning tool, it is valued more by richer, better educated people than by the poorer less educated of the society, but it is viewed unimportant for information gathering (David et.al., 2005).

Janey (2007) also described the potency of mobile telephony technology as a tool in emergency situations and how it could challenge conventional and official information sources in periods of national emergencies or social disturbances. His study drew insights from three case studies – the Chinese SARS outbreak (2003), the South-east Asian Tsunami (December 2004) and the London bombings (July 2005), to explain the influence of mobile telephony on the public sphere. Mobile technology was found to be a veritable tool in documenting and reporting events from eyewitnesses. At times of national and personal calamity/emergency as evident in the three cases cited in the study, mobile technology comes handy to document and report events from eyewitnesses and people closely involved (Janey, 2007). It could also circumvent official repression or inadequate information (Janey, 2007).

Other authors from varying fields have examined usage of mobile phone in domestic context. The anthropological studies of Fox (2004, who also referred to the work of Dunbar (1996, 2004) associated the use of mobile telephony to our need to 'gossip' with one another, which Dunbar interprets as part of fundamental human need to maintain social contacts.

An ethnographic study of mobile telephony usage in Jamaica (Horst and Miller, 2006) highlights how mobile telephony technology has contributed to improving people's work patterns and general enrichment in the lives of the Jamaicans.

The Nigeria Communication Commission (NCC) commissioned Pyramid Research (2010) to study the impact of mobile services in the daily lives of Nigerians. A cross sectional survey study on a sample of the entire Nigerian population, with 70% and 30% of 1,500 sample size of mobile users drawn from the urban and rural regions of the country respectively was undertaken in 2009.

Major findings revealed that: Mobile service have positive influence on the lives of the respondents. Specifically, more than 80% of the respondents were reported to experience financial gains from mobile services through a combination of additional income generation and cost savings on communications expenses. Other positive influence/impact reported by the study include: increased opportunities to find jobs, better access to information, savings in transportation, connecting with people enhancing social interaction, and business opportunity creation (Pyramid Research UK, 2010).

In a related investigation, internet – another variant of new technology has also been argued to have a positive correlation with international knowledge. Christopher (2008), in a cross sectional national telephone survey of individual household in the United States examined the influence of internet in predicting international knowledge. His findings established that: (1.) Internet news attention will positively predict international knowledge, and (2.) The interactions of medium-specific news attention measures will predict international knowledge.

In addition, Christopher found that gender, ethnicity, and education positively predicted international knowledge. It was reported that male gender demonstrate more international knowledge than their female counterparts and whites are more knowledgeable than non-whites in the sample. Level of international knowledge also increases with older and educated respondents according to the finding. Also, study's participants who exhibited higher interest in international affairs were shown to be more knowledgeable internationally than others. In other words, there was a positive correlation between international interest and international knowledge (Christopher, 2008).

Obijiofor, et. al., (1999) in a UNESCO-Funded study on: the Impact of New Information and Communication Technologies (ICTs) on Socio-economic and Educational Development of Africa and the Asia-Pacific examined the following themes/objectives in the context of Africa and Asia-Pacific regions:

- "Specific ICT needs of Africa and Asia-Pacific regions;
- Current status of the emerging technologies and plans for their diffusion;

- Appropriateness of ICTs to cultural, regional and national contexts and their replicability across geography and cultures; and
- Problems and opportunities associated with ICT diffusion in the two regions;
- Perception of the likely futures of ICT diffusion".

The researchers adopted an ethnographic design strategy to investigate a purposive sample of four African countries - Cote divore, Ghana, Nigeria and Uganda as well as two Asia-Pacific nations – Fiji and Philippines. Respondents for the sample comprised: internet service providers (ISPs), university academics in the fields communication and computer science, "computer and communication equipment retailers, government policy makers in ministries and agencies, editors of major newspapers, official of Telecom Fiji Limited, an information technology official of the university of the south pacific, a manager of Fiji TV Limited, a managing director of a technological company, five secondary school teachers, five postgraduate students and five business women, former secretary of science and technology (Philippines), an official of the Philippines Greens, a programme manager in a United Nations agency in Manila, an official of the national computer centre and president of one of the local universities" (Obijiofor et. al., 1999)

A grand total of 71 respondents - 47 from African countries and 24 from Asia-Pacific nations were interviewed. The finding revealed among others that: ICTs are relevant and appropriate tools in solving socio-economic problems, enhancing work place efficiency, facilitating ease and speed of social communication, offering solution to the problem of transportation, facilitating growth in global academic

scholarships and development and facilitating crime monitoring, management and control.

It was also revealed that certain constraining factors militate against widespread usage of ICTS in the sampled population. These are: poor infrastructure support (e.g. electricity and telephone lines), pervasive poverty, ignorance about the importance and benefits of ICTs, illiteracy and lack of computing appreciation skills, indifference and lack of government support, poor maintenance and repair culture, lack of a science and technology policy, political unrest/instability, conservative attitude (maintaining the status quo), health and social welfare priority, and political system that frowns against overt information exchange (Philippines).

Further, concerning the relationship between ICT and productive efficiency, Rim (2009) analysis of secondary survey data set (covering different manufacturing sectors between 1998 – 2002) obtained from Tunisian National Institute of Statistics (TNIS) relating to its National Annual Survey Report of Firms (NASRF) , the impact of ICT use on firms' efficiency was found to be strong. In other words, firms/organisations with more relative deployment/usage of ICT were reported to enjoy an average 5% productive efficiency than their contemporaries. Also, it was found that ICT deployment/usage complemented with right human capital investment would improve firms' efficiency far more beyond the direct influences of these two factors (ICT and Human Capital) if isolated.

In another related study – the "ICT Adoption and SME Growth in New Zealand (2004) Survey" - which primarily se out to establish the relationship between ICT

usage/adoption and growth of small businesses, relative strengths of various factors in SME growth equation were examined: profitability, market share and sales level. Increased profitability was found to be mostly correlated with ICT (internet and mobile telephony) usage. However, other intervening factors such as: level of ICT understanding of the business owner/manager and increase in staff strength were also found to play positive role in SME growth and profitability.

Conversely, while finding also revealed little, though insignificant evidence attributing increase in market share and sales levels of small businesses to ICT adoption/usage, results supported the potential of ICT in providing significant cost reduction.

Another study "The Small and Medium Scale Enterprise E-access and E-usage Survey (2007)" of 13 African countries (Nigeria, Ghana, Cameroon, Botswana, Ethiopia, Kenya, Mozambique, Namibia, Rwanda, South Africa, Tanzania, Uganda and Zimbabwe) by the Research ICT Africa network (RIA1) attempted to examine and understand the impact of ICTs on SME sector profitability and growth in the context of developing economies. Its findings revealed among others that: ICTs are veritable tools that significantly drive revenue generation initiatives of both formal and informal SMEs; ICT usage improves human capital output; and ICTs (mobile telephony to be specific) contributes more towards facilitating SMEs administration than computers.

Causal relationship between mobile telephony and productive efficiency was also demonstrated by Thompson and Garbacz (2007). Their finding established a positive effect of telecommunication - mobile telephony on productive efficiency in developing countries. (Samuel, Shah, and Hadingham, 2007), in their study which appeared in a Vodafone report study tagged Africa: The Impact of Mobile Phones (2005), reported that people use mobile technology as a substitute for travel, for business transactions – to start and open business, and to strengthen social bond with friends and family.

Literature is replete with many studies of this nature. But just like most other related empirical and theoretical arguments cited in this investigation, their focus is rather too technology-centric. In other words, their analyses are often one-sided, incomplete and less robust without considering the role of prevailing socio-economic contexts and factors in the debate. It is somewhat myopic in my view to analyse and discuss the impact of technology on socio-economic change without acknowledging the corresponding role of the prevailing socio-economic factors in the environment and setting where such technology is embedded.

2.8 Public Access to ICT and Third World Development

Public Access Initiative is often argued to be the most effective ICT model to bridge digital divide and support development efforts in Africa in view of the continent's infrastructural problems. Due to this challenge and other peculiar socio-economic constraints, public access ICTs model is most pervasive in developing countries (Sey, et. al., 2009).

Empirical reports/findings about their socio-economic impact have however been unclear, limited, mixed and rather inconclusive. Benjamin, (2001); Etta and Parvyn-Wamahiu, (2003); Latchem and Walker, (2001) and Roman and Colle, (2002) concluded in their research findings that the model is not financially viable and sustainable.

Their studies suggested that financial sustainability of public access model would depend to a great extent on factors such as: locally relevance services, new service development, external linkages and networking, strong local demand, good management and good locations. Kumar and Best, (2006b) reported that NGO-managed kiosks are more viable and stay operational in comparison to private kiosks which often experience closures. This according to their study is because kiosks managed by NGO often have access to financial subsidies.

Amariles et. al., (2006); Blattman, (2003) as well as Parkinson and Lauzon, (2008) commented on the issue of demand and patronage for public access venues. Generating service demand would always be a herculean task in some settings. According to Best (2007), “commercial internet centres in smaller towns and villages face a significant challenge in terms of limited pre-existing user base and the necessity of convincing the local population of the utility of ICT-related services”.

In the same vein, older people or individuals with comfortable livelihoods and considerable degree of contentment could perceive little benefit/reward/incentive in the usage of computers and the internet services (Parkinson and Ramirez, 2006).

Other researchers on this model have examined a variety of public access ICTs such as: office/school based kiosks, standalone kiosks, mobile phone-based kiosks and PC-based kiosks with respect to their physical locations and comparative service delivery, sustainability and impact. Toyama and Kuriyan (2007) wrote that office/school-based kiosks are better and preferred choices to standalone kiosks and that mobile phone-based kiosk variety provides another option to PC-based kiosk.

Standalone variety (Parkinson, 2005; Strover, Chapman and Waters, 2004) poses more challenges in maintenance than those attached to other development-related institutions. Kiosks/centres linked to development-related institutions also attract more patronage than standalone variant.

Level of education and perception by some individuals that public access ICTs are provided/targeted for the society's elites determine its usage and adoption (Etta and Parvyn-Wamahiu, 2003). Colle and Roman (2002) stated that siting telecenter (a variety of public access ICT) services in libraries could have a negative influence/effect on its adoption and usage among individuals who view library as a place for intellectuals. In contrast, Ulrich (2004) investigation in China reported no correlation between level of education attainment and usage of community-based internet facility.

Concerning types of public access ICTs users, most findings revealed that it tends to enjoy much more patronage from young, male, relatively well-educated, of relatively higher socio-economic background/status, especially students in college and high school in comparison with general population. More often than not, this section of

the population have previously had access to the internet services at other places/venues/locations (Adami, 2007; Amariles, et. al., 2006; Chisenga, 2004; Etta and Parvyn-Wamahiu, 2003; Eve and Brophy, 2001; Gitta and Ikoja, 2003; Haseloff, 2005; Hudson, 2001; Kuriyan and Toyama, Kentaro, 2007; Parkinson, 2005; Parkinson and Ramirez, 2006; Proenza, Bastidas-Buch, and Montero, 2002; Rajendra Kumar and Best, 2006b; Robinson, 2004; Selwyn, 2003; Stewart, 2000).

However, farmers, medical staff and NGO staff were found to be primary users in a public access ICTs review projects (Hudson, 2001) undertaken in three African countries. In the same light, Kaiser (2005) reported that underrepresented groups with respect to: race, income, and education were the primary users of community technology centres in the United States.

On types/purposes of usage, personal and social needs seem to pre-dominate underlying motivation. Such need range from: developing computer appreciation skills, doing homework/assignment, entertainment and conversing friends, family and associates (Etta and Parvyn-Wamahiu, 2003; Eve and Brophy, 2001; Gamage and Halpin, 2007; Gitta and Ikoja-Odongo, 2003; Haseloff, 2005; Lengyel, Eranusz, Fuleki, Lorincz and Siklos, 2006; Pal, Nedevschi, Patra, and Brewer, 2005; Parkinson, 2005; Parkinson and Ramirez, 2006; Robinson, 2004; Stewart, 2000; Strover et. al., 2004). This usage, by far outstrips economic, political and other related activities that also informed public access ICTs patronage (Kuriyan and Toyama, 2007).

Meanwhile, a mixed-method explorative study (Gomez, 2012) of users' perception of the impact of Public Access Computing (libraries, telecenters and cybercafé) in Colombia, South America, conducted by University of Washington researchers and local partners revealed both positive and negative findings. On the positive side, four types of benefits emerged in the findings: increased information, stronger relationships, better learning opportunities and easier transactions. In addition, the study also reported negative outcomes by a small proportion of PAC users: increased dependency or addiction, less time availability, more superficial interactions/knowledge, greater expense as a result of new costs for PAC, issues with viruses or hackers and lack of privacy.

Perception by some that considerable exposure to public access internet services and computer would markedly improve their marketability/employability in the labour market also find some support in the literature (Kaiser, 2005; Parkinson and Ramkirez, 2006; Parkinson and Lauzon, 2008). Public access ICTs as a veritable resource in managing emergencies in crisis situations is also supported by some studies. Communities have exploited its usage in seeking aid/support/assistance and locating missing people in Jamaica (Bailey, 2009), in U.S.A (Bertot, 2006) and in Africa (Etta and Parvyn-Wamahiu, 2003).

In a related study of ICT project deployment for development, Hosman and Fife (2008) examined public-private partnerships (PPPs) strategy as a model for ICT deployment in the third world country. Under the topic ''Improving the prospect for sustainable ICT projects in the developing world'', a Sri Lankan-based ICT pilot project (EasySeva), involving multiple stakeholders was studied with a view to

providing empirical evidence that would inform the formulation of sustainable and scalable ICT deployment project, that would be ideal and suitable for the socio-economic advancement of the rural regions in the developing world.

EasySeva is a profit-oriented, multiple partnership project, conceived to provide a much affordable internet facilities to the less-privileged dwellers of the country. Its design as franchising model was conceived to empower rural entrepreneurs through establishing and managing affordable public telephony as well as internet connectivity business. The motivation was to enhance the quality of life and improve the economic status of the rural communities through the usage of ICT (Synergy Strategies Group – SSG, 2007).

Their findings revealed some success factors attributed to EasySeva, which could be replicated in similar environment and context with respect to ICT project deployment as a tool for socio-economic empowerment/development:

- The design ensures every stakeholder demonstrate enduring commitment to the success of the project.
- Resource provision for it was achieved through a collaborative –supportive approach as against handouts by a particular stakeholder.
- Diversity of all parties/stakeholders allows flexibility in interactions among participants.
- Services provided by the franchises reflect local content and address local needs and wants.

- Relevant/adequate training programmes are provided for the franchise operators.
- Advanced technology (wireless broadband and VOIP) that could survive peculiar infrastructural challenges and rural connectivity issues was adopted.
- Considerable discount in upfront investment outlay; many partners are involved, and are therefore able to negotiate rates discount, share costs of investments and spread risk among partners.
- Every partner is treated as equals and participates from conception and initial stages. There is also provision for prospective future partners to be co-opted.
- Local dwellers are recognised as important partners at every level of the process, and are widely consulted. Consultation was undertaken prior to projects start-up, to determine relevance to meeting local need or desire (Fife, and Hosman , 2007).

To bridge the digital divide, Adegbola (1998), asserts that clear-cut strategies and steps are required to ensure rural regions/communities have access to ICTs by way of, for instance, addressing constraints caused by issues associated with the third world social infrastructural challenges. Butcher's (1998) perspective focuses on allocating resources to ensure marginalised communities have access to ICTs in an innovative and cost-effective ways, rather than reinforcing the subsisting expanding divide between the rich and the poor.

Butcher also highlighted the strategy of education as a developmental initiative in South Africa where community centres are conceived as implementation strategy to

realise the potentials of ICTs (Butcher, 1998). This also finds credence in the idea of telecenters in Africa (Benjamin, 2000 and 2001).

There have been a significant number of studies suggesting telecenters as appropriate, result-oriented and cost-effective model of accessing communication technologies by the less-developed districts of the third world economies. This is due to their peculiar infrastructural and other socio-economic impediments. Such research efforts include: Akakpo and Fontaine (2001); Anderson et. al., (1999); Benjamin (2000, 2001); Benjamin and Dahms (1999); Dahms (1999); Delgadillo and Borja (1999); Ernberg (1997); Fuchs (1997, 1998); Gomez et. al., (1999); Holmes (1999); Jensen (1998); Lamoureux (1999); Opoku-Mensah (1998) and Robinson (1998).

Aranda and Fontaine (2001), Benjamin (2000), Hudson (2000), Jensen and Esterhuysen (2001), Latchem and Walker (2001) and Manyaja (2001), asserted that governments, international donors, the private sector and community organizations have shown considerable interest in adopting telecenters as access strategy with a view to addressing the problems of digital divide in Africa.

2.9 Discussion and Critique of Major Studies

In spite of the heated intellectual debate (theoretical and empirical) on ICTs potential or otherwise in accelerating socio-economic development, there seems to be little or no doubt with respect to its relevance as an invaluable tool/resource in facilitating social and economic engagements – at domestic and global levels. Bailey, (2009); Barlow, (1998); Bertot, (2006); Chowdhury, (2000); Goodman, (2005); De Silva and

Zainudeen, (2007); Dunbar, (2004, 1996); Fox, (2004: 84 7); Horst and Miller, (2006); Hudson, (2001) as well as Janey, (2007) all established support for the value of ICT in coordinating social emergencies, facilitating social capital and economic engagements.

The theoretical argument in favour of ICT potential impact on poverty reduction and development seems to stem and flow to a large extent from general assumptions concerning perceived benefits of ICTs diffusion, and not from empirical evidence. However, most of the empirical studies that attempted to analyse the correlation between the new ICT and socio-economic development/growth or poverty reduction tend to approach their investigations from a naïve, narrow, one-directional and rather simplistic perspective of a technological determinism. Focus of impact studies on the relationships between ICT and socio-economic development view the new media as independent, causal, primary, predictor variable of socio-economic change process.

Studies by (Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Bailard, 2009; Christopher, 2008; Cronin et. al., 1993; David, et. al., 2005; Diga, 2007b; Gomez, 2012; Jenson, 2007; Lydon and Williams, 2005; Okpaku, 2006; Pilat and Wolfl, 2004; Pyramid Research UK, 2010; Roller and Wavermann, 2001; Samuel et. al., 2007; Thompson and Garbacz, 2007; Wavermann, et. al., 2007 and Williams, 2007) seem to adopt technological deterministic outlook in their impact research endeavours.

Virtually all of these studies fail to acknowledge the peculiar socio-economic contexts in which technology is embedded, and how its probable impact might be shaped and moderated by such environmental factors and vice versa. It is often generalised by some authors (Ashby et. al., 1980; Djamen et. al., 1995; Lerner, 1958; Lomas, 1995; and Pye, 1963) that technological provision would positively impact or contribute to the socio-economic advancement in developing society. This is premised on the old paradigm assumption that developing world would experience development if it copies the western-designed technological infrastructure. Just having access to technological resources would hardly guarantee the replicability of socio-economic situations experienced in the west. The context of infrastructure and socio-economic peculiarities of each of the countries and communities in the developing world would have to be understood in terms of how they might interact with technology in defining/shaping/moderating any potential impact.

Few studies also recognise the dynamism of the context of ICT and the technology itself. As the social context in which ICT is embedded always evolves, so does design, appropriation and usage of technology. People adapt the design features and usage of technology to suit their changing needs as their experience develops, leading to the creation of new usage patterns in social relations (Donner, 2007; Sey, 2007). Such shaping or adaptation of technology is often not taken into consideration, especially in developing countries, in explaining ICT impact in socio-economic development.

This research would address the aforementioned gaps in most existing literature as captured above, from the perspective that the relationship between technology and

society is mutually influencing. Technology influences livelihoods, and people in turn shape, appropriate and redefine the technologies that are available to them through the market and their daily usage.

2.10 Specific ICTs' Impact Studies on SMEs' Business Performance

According to the United Nations (2007), ICTs' adoption can be very beneficial to SMEs performance. Such potential performance-enhancing benefits include: increased productivity in the production processes; improved efficiency of internal business operations; better and accelerated access to domestic and global business contacts; improved inventory management systems; efficiency in production processes; improved intra-departmental communication; improved accounting and budgeting practices; significant communication cost reduction; increased client base through e-marketing; facilitating links to domestic and global outsourcing contacts; facilitating acquisition of best practices in business dealings; facilitating capacity-building of entrepreneurs and workforce through e-learning platforms as well as enabling business registration and administration of tax remittances. In the same vein, the European Commission (2008) echoes similar sentiment that ICT is capable of enhancing growth potentials of SMEs and accelerating their innovativeness.

The positive influence of ICT usage on business performance of SMEs has also been widely reported in a significant number of empirical studies. It (ICT) is viewed as a catalyst to organisational change (Hazbo et. al., 2008) and an enabler to improved business performance of SMEs. Evans and Wurster (1997) argue that it facilitates reach and engenders richness in e-business communication and collaboration with

stakeholders, as well as enhances the capacity of local SMEs to engage gainfully in the digital economy (Golding, et. al., 2008). Pavic et. al. (2007) reported that SMEs could leverage on ICT advances to gain competitive advantage in terms of innovation, marketing, business efficiency, product quality and customers' responsiveness.

There are fewer empirical studies of the impact of ICTs on small and medium enterprises in developing countries, compared to the developed economies. However, much of such empirical research suggests significant improvement in the business performance of firms studied, as a consequence of adoption and usage of ICTs. Muller-Falke (2001) in his study of SMEs operating in Indian manufacturing sector reported that firms that use significant level of ICTs, especially the advanced forms, enjoy much higher productivity and enhanced business growth.

In a related study, Lal's (1996) survey of 59 small and medium electrical and electronic manufacturing firms in India found increased profit margins, enhanced skill intensity and much improved export and import transactions for firms leveraging usage of ICT. Evidence also indicates a positive causal relationship between ICT adoption and export performance of small and medium businesses (Lal, 1999; Nassimbeni 2001).

A more recent study of impact of ICT on small and medium enterprises in Kumasi, Ghana suggests that most of the SMEs studied experienced a positive business performance as well as other benefits, as a result of using ICT. The study (Akomea-

Bonsu, 2012), a mixed-method investigation of 40 SMEs specifically reported a significant increase in sales volume as a result of using the internet/website; cost reduction and improvement in business operations and increase in firms' output/productivity. A related study (Isaac, 2012) on a random sample of 350 small scale business owners in Southwest Nigeria concerning *Information and Communication Technologies as Drivers of Growth: Experience from Selected Small Scale Businesses in Rural Southwest Nigeria*, reported cost reduction, ease of marketing and enhanced incomes by small scale entrepreneurs as consequences of ICT adoption and usage.

Adewoye et. al. (2012) also reported a significant and positive effect of ICT's investment on the profitability of SMEs in Nigeria. Their investigation examined the effects of Information and Communication Technology investment on the profitability of 60 randomly selected sachet water businesses in Oyo state, Nigeria. Findings suggest a significant causal relationship between ICT investment and profitability of the firms. Results also indicate an increase in manpower requirement, salary and business capital invested after ICT adoption. However, there was also a corresponding increase in production volume and profitability (Adewoye et. al., 2012).

Also, findings from an in-depth case study of a cloth-weaving microenterprise in Nigeria indicate that mobile telephony adoption and usage save time (by substitution of journeys) and reduce the cost of business transactions and their associated risks. However, the study finds a growing need for occasional business travels and

physical meetings for clarification on issues of design specification, physical verification and exchange (Jagun et. al., 2008).

Mobile telephony is also reported as a facilitator and enabler of business coordination, consultation and financial transactions. Martin and Abbott's (2011) study of 90 small and medium-sized farmers in Kamuli, Uganda found that "respondents indicated use of the mobile phone for coordinating access to agricultural inputs, market information, to monitor financial transactions, and to consult with agricultural experts" (Martin and Abbott, 2011, p.17).

Barrantes caceres et. al. (2012) also conducted an explorative, qualitative case study of the impact of mobile telephony usage on small and medium businesses in the carpentry and cabinet-making sector in a disadvantaged district of South Lima, Villa El Salvador. Informed by the cluster theoretical perspective, the research suggests that the impact of mobile telephony usage manifests more in business areas of marketing and customer relationship management.

Specifically, findings demonstrate that: "the mobile telephone facilitates the rapid flow of information in the vertical negotiation processes. The mobile also improves emergency responses or furniture production impasses with bespoke design" (Barrantes caceres et. al., 2012: p.88).

In the same vein, a multi-stage probability survey (Chew et. al., 2011) of small and medium businesses in Mumbai, India indicated a limited, but statistically significant

causal relationship between ICT usage and business growth. Another related study (Donner, 2006) on mobile telephony usage by micro-entrepreneurs in Kigali, Rwanda – focussing on small and small business owners in low tele-density areas indicates that it enables development of new business contacts. The survey, involving 502 respondents is among the relatively few, but growing body of research from the developing country or African context, suggesting positive causal relationship between ICT adoption/usage by small and medium entrepreneurs and improvement in business performance.

Just like much of the empirical research and other theoretical arguments previously discussed in this thesis, these studies have made significant contributions towards our understanding of the relationship between communication technologies and society. However, their analyses focus so much on technological imperatives as determinants of socio-economic change, thereby providing an incomplete, uni-directional and one-sided account of the relationship. In other words, a complete and balanced explanation would need to give due considerations to both technological and social factors in the analysis in order to deepen and strengthen our understanding of a more symbiotic interaction between technology and society.

Therefore, this study departs from such narrow and rather simplistic perspective of technological determinism. Informed by the modified social shaping theoretical framework, this research investigates the impact of communication technologies (mobile telephony, internet and/or computer) on the performance of small and medium businesses operating in both the affluent and disadvantaged districts of

Lagos state, Nigeria. It aims at furthering the scope of investigation in this field by providing much deeper insights and understanding into a more symbiotic and mutually-influencing relationship between technology and society.

The research addresses the following questions:

1. What impact(s) do ICTs have in enhancing the business performance of SMEs?
2. In what ways does socio-economic context influence the choice of ICTs by SMEs; and what is the impact on business performance?
3. To what extent does socio-economic context mediate, shape the impact(s) of ICTs on the business performance of SMEs?
4. What are the different SME outcomes that can be identified in varying local socio-economic contexts where there is similar ICT access; and how can these be explained?
5. In what ways do ICTs and social context mutually influence each other?

2.11 Summary of Main Arguments and Research Focus

- Empirical and theoretical evidences (Aker and Mbiti, 2010; Donner, 2004; Gomez, 2012; Horst and Miller, 2006; Jenson, 2007; Pyramid Research UK, 2010; Rim, 2009; Samuel, Shah and Hadingham, 2007; Thompson and Garbacz, 2007; Waverman, Mesch and Fuss, 2005; Williams and Lydon, 2005) reveal that ICT are potent tools in facilitating productivity and enhancing workplace efficiency in developing world. Besides, it has been

shown (Papaioannou and Dimelis, 2007) that there is an evidence of causality between ICT and organisational performance/productivity. It is also argued that there is a positive causal relationship between mobile technology (in particular) and productive efficiency in developing nations. People are reported to use mobile technology to facilitate business transactions – starting and opening business, create business opportunity, as a substitute for travel and to entrench social capital.

- Specifically, empirical evidences (Adewoye et. al., 2012; Akomea-Bonsu, 2012; Barrantes cacares et. al., 2012; Chew et. al., 2011; Esselar Steve et. al, 2007; Evans and Wurster, 1997; Golding et. al., 2008; Hazbo et. al., 2008; Isaac, 2012; Jagun et. al., 2008; Lee Martin and Abbott, 2011; Locke Stuart, 2004; Muller-Falke, 2001; Pavic et. al., 2007; Rim, 2009) also support positive causal relationships between ICT and small/medium businesses in terms of driving productive efficiency, profitability and growth.

- It is argued (Batte, 2005; James, 2007; Nair, 2010; Zhao et. al., 2006) that there is a digital divide between the developed economies and developing world of Sub-Saharan Africa (SSA) and South Asia, as well as between the urban/rural and rich/poor. Studies/debates on factors necessitating the Divide suggest that the developing world as a whole and its rural areas to be specific fare worse in comparison to the advanced economy.

- Related to the above, rural communities of the developing world are said to be at greater disadvantage in using computers due to cost, illiteracy, lack of interest and non-relevance to their needs; and as a result of infrastructural challenges and other social constraints. Diffusion of technology in the rural society of developing world is limited, and depends more on institutional efforts than individuals' will; ICT (computer) adoption and usage is influenced by variables such as: education, income, age, social network (encouragement from peers, family and associates), language of communication and gender in developing countries.

- Mobile technology in particular is argued to be a very invaluable tool in emergency situations management, and valued more as money saving technology than money earning tool; it is also found to be more valued by richer, better educated people than by the poorer, less educated of the society.

- It is also argued in the literature (Sey, et. al., 2009) that Public Access Model has been the most pervasive and effective ICT diffusion implementation strategy in Africa as a result of lack of requisite infrastructural base to support widespread ICT uptake in the rural region of Africa where the majority reside.

- There is also a strong debate by some scholars (Jegede, 1995; Lerner and Schramm, 1976 as well as Stevenson, 1991) that technology (internet connectivity) in Africa could make people entertain false belief/hope in

internet as solution to Africa's problems, but not necessarily drive development. It is argued that emphasis in ICT provision in Africa continent could be counter-productive and potentially divert attention from more pressing developmental priorities.

This research will explore causal relationship between ICTs (mobile, internet-based and/or personal computer) and business performance of small and medium enterprises in developing country – using Lagos state, Nigeria as a study area.

Specifically, empirical evidences (Adewoye et. al., 2012; Akomea-Bonsu, 2012; Barrantes cacares et. al., 2012; Chew et. al., 2011; Esselar Steve et. al, 2007; Evans and Wurster, 1997; Golding et. al., 2008; Hazbo et. al., 2008; Isaac, 2012; Jagun et. al., 2008; Lee Martin and Abbott, 2011; Locke Stuart, 2004; Muller-Falke, 2001; Pavic et. al., 2007; Rim, 2009) also support positive causal relationships between ICT and small/medium businesses in terms of driving productive efficiency, profitability and growth. But it is not known how specific local context mediates such influence in change situations. This research will therefore further the scope of investigation into ICT and society by moving beyond analysing technology impacting society, and will examine how social context also moderates the choice and influence of technology.

Meanwhile, it should be acknowledged that in the field of ICT and socio-economic development studies, attempting measurement of ICT impact is a daunting task.

There is an implied presupposition of causality in ICT impact research – ICT, a causal or predictor variable in socio-economic change situations.

However, the complexity of social situations suggests multiple causes (known and unknown) of a phenomenon in social sciences, making it empirically difficult to ascribe a change in the course of any social situations to a particular single variable or factor. According to Gomez and Pather (2012), social impacts occur downstream and over a period of time, and they are the outcome of multiple factors and events; they are multidimensional in nature, and include individual, collective, organizational, human, social, economic and political dimensions.

Therefore, this thesis will demonstrate how ICTs (mobile telephony, internet and/or computer) make a 'significant' contribution to the performance of small and medium firms in two different districts in Lagos state, Nigeria; and how such contribution is also shaped by the prevailing social factors/contexts where the firms conduct their businesses.

2.12 Chapter Summary

The chapter presented the major arguments (theoretical and empirical) on ICT potentials and relevance in facilitating social and economic engagements at domestic and global levels. It is revealed that most of the empirical investigations that attempted to analyse the correlation between ICT and socio-economic development tend to approach their studies from a narrow and rather simplistic perspective of technological determinism. ICT is often viewed as independent, causal, primary,

predictor variable of socio-economic change. In other words, most of the previous studies did not acknowledge the dynamism and peculiarities of social contexts in which technology is embedded, and how its probable impact might be shaped by such factors and vice versa.

This study departs from such narrow and simplistic perspective of technological determinism and argues that the modified social shaping theory allows for broader, more robust as well as deeper insights into the mutually-influencing interactions between technology and society. There is an interactivity between technology and society – technology influences/impacts socio-economic change and such impact is also moderated, mediated and shaped by the prevailing social context.

The next chapter of this dissertation examines other major theoretical perspectives to ICT studies in the context of their weaknesses, and presents the rationale for adopting the modified social shaping framework.

CHAPTER THREE

Perspectives on ICT Studies

3.0 Introduction

This chapter features major theoretical perspectives to the study of Information Communication Technology as articulated by different scholars and researchers. In particular, it discusses the basic tenets of Donald Mackenzie and Judy Wajcman's Social Shaping Theory, which has been modified with a view to broadening its scope and making it more applicable and suitable for guiding data collection and analysis in this study. The modification of social shaping perspective is necessary because this investigation is particularly interested in examining and explaining how ICT and social context mutually influence each other.

The chapter is structured into different sections. The first part discusses the theoretical perspectives to ICT studies that have been articulated by the scholars. The second part focuses on social shaping and other related perspectives, and the third part further discusses the social shaping perspective as the adopted theoretical framework and also explains its basic tenets. In conclusion, the chapter presents the major criticisms against the social shaping theory, critical reflections on major theoretical perspectives and further argues for the applicability of the modified social shaping theory as the most suitable for the study. It also clarifies the relevance and appropriateness of social shaping perspective in the context of this study.

3.1 Theoretical Perspectives on ICT Studies

Scholars have articulated their perceptions and understandings of the role of technology in society. Varying theoretical views have produced different perspectives to analysing, understanding and explaining the role of technology in society.

Instrumental Theory: Technology is assumed to be subject to human control/manipulation, and human agency causes social change. Technology's usage does not alter/change social structures and practices. According to (Chandler 1995; Levinson 1996; Mackenzie 1996), technology is deemed to be neutral and is inherently neither good nor bad. People could use it for good or evil, depending on their intention. Therefore, technology is just a tool whose usage is subject to the whims of people and could be employed for various ends.

In other words, this perspective would mean that technology is indifferent with respect to socio-economic development. Using this perspective to study impact of ICT in socio-economic development or poverty alleviation, one needs to investigate how a particular type of ICT (of interest) is used by human agency.

Substantive Theory: Proponents of this perspective are of the view that technology is a way of life which conditions/shapes human action and interactions. (Ellul 1964, 1990; Heidegger, 1977), argued against the neutrality of technology. According to Feenberg (1991), technology alters/changes the structure and way a society operates. In using technology, society would make "many unwitting cultural choices" (Feenberg 1991, P.8). Simply put, technology brings about social change in an

environment in which it is situated/embedded. In designing technology, human agency could shape design option to achieve own ends (Feenberg, 1999).

Using this perspective to examine impact of ICTs on socio-economic process or poverty reduction, researchers would be expected to investigate probable direct effect/change/influence in socio-economic development landscape, as a consequence of adoption/usage of a particular type of ICT. The theory however remains silent regarding human agency and how it might shape ICT, and rather advocates technological determinism.

Technological Determinism: Determinism means the "doctrine that all events, including human action, are determined by causes regarded as external to the will" (Concise Oxford Dictionary – 9th Edition). It opines that human agency has limited or no control/freedom to direct/shape/influence own actions, rather determining forces such as technology is in control. The basic assumption of this perspective with respect to socio-economic development is that technology would positively drive development. Socio-economic implications of technology as driver of development is thought to be unavoidable once constructed. Also referred to as 'technological imperative' (Chandler, 1995), technology influences/shapes social structure, processes and class relationships.

According to Marshall McLuhan who described a variant of technological determinism – media determinism, - new ICTs as well as newspapers, television and radio are mediating/shaping varying interactions between people in their usage.

Message/content is impacted by the technology media or channels. Put simply, the media technology/channel impacts/shapes people's interactions and by extension impacts the way society operates (McLuhan, 1967).

Technological determinism generally perceives as an external agent and primary driver of social change with deterministic influence. The perspective is one-directional and takes a very simplistic view of change in society. Technology is perceived to play a deterministic role in effecting social change, but not necessarily subject to reciprocal influence in the society. In other words, the influence of socio-cultural context/dimension and human actor is overlooked.

Contrary view to this perspective is expressed by (Barley, 1986). According to him, technology is not an independent variable that causes/ brings about social change, but only triggers it. Social change that technology triggers could either be expected or unexpected. Technology should therefore be perceived as a social object whose meaning and influence is shaped/defined by the specific social context in which it is embedded (Barley 1986, 1990).

Social Shaping: It argues that social factors partly influence technological outcomes. According to (Mackenzie 1990; Mackenzie and Wajman 1985), technology is shaped by and constructed by social actors/factors, and is also subject to the influence of socio-cultural, ecological, political and economic imperatives/factors in the society. It examines the social construction of technology from a broader

perspective. Technology is perceived/understood to be a product of human action, design and appropriation as well as other social forces.

Studies from this perspective would dwell on providing empirical explanations to why ICTs are adopted, shaped, and used in a particular society or organisational setting, the impact of socio-cultural context on technology and how shared/collective meanings/interpretations of a certain technology come about and influence its development. This perspective however tends to overlook the reciprocal effect/influence of technology on the society, despite its broad inclusion of social forces that impact/influence technology choices.

Structuration Theory: It is a variant of social shaping which views structures in terms of rules, guidelines and resources initiated as components of social systems. Human actions are constrained and enabled by structures/established rules, which are also products of human actions. People engage with technology in their interactions and therefore establish structures/rules which also shape their usage of technology (Orlikowski, 1992). The perspective considers the debate/argument over varying conceptualisations of technology with respect to its scope and role, and settles for three models:

- Technological imperative: focus on organisational characteristics which can be measured and permits some level of contingency
- Strategic choice: focus on how technology is influenced by the context and strategies of users and decision-makers.

- Technology - a trigger of change: view technology as a social object (Orlikowski, 1992:).

Social Constructivism: This perspective predicts that social factors primarily predict/determine/shape the role and function of technology in society. According to Brey (1997a), "No 'properties', 'powers', or 'effects' can be attributed to technologies themselves" (P.5). Effects of technology vary with society and are context dependent. It is argued that technology is not neutral but a social construction (Collins, 1985; Pinch and Bijker, 1987; Woolgar, 1991).

Studies using this perspective lean towards investigating the role of various human agencies such as Engineers, Pressure groups, Users and Entrepreneurs and so on, as primary actors in shaping, constructing, negotiating and interpreting specific technologies. Focus of analysis is shifted from technology to the context shaping it, and the possibilities of varying technological designs being patterned and shaped by their respective social contexts and selection environment could be of interest. This approach implies that human agencies are in complete control of ICTs' impact/influence without accounting for the unplanned outcomes of ICTs.

Actor Network Theory: This approach is a variant of social constructivism. Basically, it questions the role of broad socio-economic hierarchy of influence as well as interest, arguing that technologies are highly subjected to the influence of local actors who are also creators of the world anew (Latour 1983, 1986, 1988). The

perspective suggests technology as well as society mutually interact or influence/shape each other.

Callon (1987); Callon and Latour (1992); and Latour (1987) opine that there should be no distinction between technology and society. The perspective is often referred to as 'Constructivism' and argues against the concept of social construction of technology. It suggests perception of the world in terms of human-machine system, as against dwelling too much on human agency, which often downplays the role technology.

The theory conceptualises actors/actants to mean both humans as well as artefacts, thereby removes any distinction between human and material. Actors are conceived to influence each other within a network in a continuing process. Blurring of distinction between human and material agency is viewed as major downside of this theoretical perspective. Establishing clear distinction between human and material agency would be vital in examining the interplay between technology and society.

Social Presence Theory: It concerns itself particularly with social consequences of technology (telephony and telephone conference). What are the social effects of new ICT media usage? Social presence is viewed as the degree of visual and physical contact that new medium/technology allows.

The perspective assumes that physical contact with technology would increase key components 'presence' – immediacy, warmth, greater intimacy and interpersonal

rapport (Short, et. al., 1976). This would ultimately increase the social influence of technology.

3.2 Social Shaping and Related Perspectives

The social constructivism, technological constructivism, actor-network as well as social shaping of technology theoretical approaches all employ sociological perspectives to the analysis of adoption and appropriation of technology. Field of research in these areas is anti-technological determinism.

Context of everyday life interactions rather than technologically-induced social change is the focus of study in social shaping thinking. The social shaping, like other theoretical perspectives that are anti-technological determinism seem to emerge from the same mindset (though to different extents/degrees) that technology and society are somewhat mutually constitutive. The aim is to examine/study the reception and understanding of technologies rather than their invention, production, distribution, and management (Leah, 2004).

Technology is assumed not to determine human actions, but human actions determine/shape technology. There is flexibility in the design, conception and interpretation of technology. Technological products are culturally constructed and interpreted. Socio-cultural and political experience of a people/social group influence their mores and value system, and shape the meaning they attribute to technology (Pinch and Bijker, 1992). Social world and context should be examined and studied

for broader and adequate understanding of probable reasons for acceptance, appropriation or rejection of a technology.

The logic of social shaping in particular states that technology could be fundamentally altered by societal variables. Social context fundamentally affects and shapes technology. Most studies in this area are responding to the apparent disproportionate attention some social scientists devote to the effect/influence of technology on society – from the perspective of technological determinism, while neglecting what shapes technology as well as the character, nature and influence of the shaping forces.

Social shaping suggests that technology is always negotiable – particular community/society/subgroup/force could shape technology to achieve their particular ends and social outcome (Cronberg, 1992). Technology innovation is perceived to be a social activity that is subject to social influence/situations, and open to social investigation and interpretation (Bijker, 1993).

Social shaping research examines "ways in which social, institutional, economic and cultural factors have shaped:

- The direction as well as the rate of innovation
- The form of technology: the content of technological artefacts and practices
- The outcomes of technological change for different groups in society" (Bijker, 1993).

Ryckeghem (1995) describes an interaction between technology and culture. His study revealed how culture influences IT and vice versa, explaining that culture provides the context/condition for interpreting IT's usefulness/benefit/influence. According to him, IT's positive influence on the productivity of workers/workplace with established sense of communality may be non-existent, as work environment and information-seeking behaviour of such individuals would be reflective of their shared community spirits.

In other words, an information seeking/exchange culture (especially among many African societies) that thrive on preference for consultation with friends, colleagues or associates as against visiting telecenter/library or documentation centre would be practically impossible to alter with technology/IT/internet. Understanding the peculiarities of Africa's socio-cultural context and environment in terms of nature of work practices, organisational structure and predispositions is pertinent to comprehending the nature of technology/IT's influence in the host environment (Ryckeghem, 1995).

African societies are characterised by a unique sense of communality, greater interaction and strong social bond or family ties. They are therefore susceptible to strong socio-cultural influences. Technology that promotes and sustains these values (Obijiofor, 1998) would receive their warm embrace.

Having established the significance of socio-cultural context and economic conditions as mediators of probable influence technology might have in a change process, it would be interesting to know in what ways variables in social, cultural

and economic life of a people moderate any perceived impact of technology. Wei and Kolko (2005) analysed mobile telephony usage pattern in Uzbekistan with respect to how cultural factors/variables and economic constraints influence mobile telephony usage pattern in the country. Their exploration study also seems to reveal how social relationships are being altered/transformed in form of utter dependence on mobile technology.

Studies on how mobile technology affects/defines/reconstructs social relationships and urban experiences in developing world are conducted by investigating the experiences in Morocco (Maroon, 2006) and Indonesia (Lim, 2002). One of the most novel transformations in social relationships as a consequence of mobile technology adoption in developing world is the common practice of managing limited call-credit.

People 'beep' to register a deliberate 'missed call' on intended recipients' phones' screens so as to avoid being charged by the phone company. The recipient, oftentimes, more financially-buoyant either calls the initiator or generally understands the 'coded message'. This social interaction pattern has become somewhat prevalent in the urban communities of developing world, leading to the creation of new usage pattern in social relations (Donner, 2007; Sey, 2007).

3.3 Theoretical Framework- Introduction

Theoretical and academic debate on the nature of relationship between technology and society has always been so intense. Earliest theorizing tended to privilege technological determinism - technology viewed as an autonomous, separate entity

that is independent of society and exacting effects on society. This thinking has been widely criticised as having potential to stifle creative engagement with technology, leading to uncritical embracing of technological change and defensive adaptation to it (Donald and Judy, 1999).

By stressing technological influence on society, deterministic assumption overlooks the social shaping of technology or how the social relations and networks forged by individuals in society affect, moderate and shape technological impact, design and usage. Constructionism, as a general theoretical viewpoint against technological autonomy or supremacy opposes determinism.

Williams and Edge (1996) noted that social shaping of technology thinking denies that technology emanates from "a single social determinant, or through the unfolding of a predetermined technical logic" (p.54). Sproull and Keiser (1991) established that the significant impacts of technological usage could hardly be anticipated, according to their investigation of technology usage in organizations.

3.4 Background to the Social Shaping of Technology

The intellectual conception of social shaping is a response to the uncreative, one-sided analysis of technology and its relationship to societal forces and institutions. Most development analysts, socio-economic critics, policy designers and a significant number of social scientists cum researchers tend to treat technological change as inevitable, given, predictable and therefore follows a predetermined path and suppliers' rhetorics concerning its reliability and efficacy.

The idea of social shaping offers a broader, different perspective to technology debate and study, rather than merely assessing its social 'impact' and accepting in totality the crude technological determinism which according to Edge (1988), holds: "that the nature of technologies and the direction of change were unproblematic or predetermined (perhaps subject to an inner 'technical logic' or 'economic imperative'); that technology had necessary and determinate 'impacts' upon work, upon economic life and upon society as a whole: technology change thus produces social and organisational change" (Edge, 1988).

Social shaping research favours an analytic model of inquiry that privileges interactivity between technology and society, where technological change/innovation is perceived as a complex, iterative social activity that incorporates users' needs/requirements and involves interactions amongst every affected party, institutions and forces. According to Fleck (1988a), "the possibility of the development of technologies which are at the outset intrinsically constitutive in terms of user needs and requirements - that is, in terms of the characteristics of demand. This is achieved, not through some esoteric, arbitrary plastic, ''black box'' of technology which responds to market signals conveying information about demand, but through determinate processes of technological design, trial and exploration, in which user needs and requirements are discovered and incorporated in the course of the struggle to get the technology to work in useful ways, at the point of application" (Fleck, 1988a, p.3).

Social shaping is therefore a critique of technological determinism, and problematises the study of technology by leading an inquiry or investigation into how socio-economic and cultural forces shape “the direction as well as the rate of innovation; the form of technology: the content of technological artefacts and practices; and the outcomes of technological change for different groups in society” (Research policy, 1995). In other words, it broadens the scope of investigation into technology beyond its mere social impact assessment to analysing what shapes the technology which is causing those impacts or outcomes and how such impacts are achieved (Mackenzie and Wajcman, 1985).

As a broad social analysis of technology, it deepens understanding of the mutually influencing relationship between technology and society. It broadens technological policy debate by offering a deeper understanding of technological innovation towards effective promotion and management of technological change (European Science Foundation/Economic and Social Research Council, ESF/ESRC, 1991; Newby, 1992)

In social shaping tradition, technological design and manufacture is culturally a frozen embodiment of myriad of social relations – values, norms, practices, assumptions, belief system, language and so on. It represents a form of social order in material form (Latour, 1991). The design, usage and consumption of technology are therefore socially contingent.

In contrast to technological determinism tradition which merely investigates and considers social change/adjustment occasioned by technological development, social shaping problematises technology and technology change by dissecting technology "to allow the socio-economic patterns embedded in both the content of technologies and the processes of innovation to be exposed and analysed" (Bijker and Law, 1992; Mackenzie and Wajcman 1985).

A classical illustration of social shaping in action is the Robert Moses's bridge on Long Island, New York as analysed by Winner (1985, 1980). The structural design of the bridges (with a low headway, such that commuter buses that convey poor, black people who depend on bus transportation could not drive through them, so that the poor are practically sealed off the roads) is interpreted to be reflective of the social class bias and racial prejudice of the designer.

Social shaping of technology suggests that technology is negotiable (Cronberg, 1992). There is likelihood of varying outcomes as different societies or groups attempt to achieve set target through technological design and manipulation. Technology policy agenda informed by social shaping perspective is likely to be more effective and result-oriented as a result of stronger focus on reciprocity of interactions among every stage of technological change – conception, design, application and outcome.

Four fundamental components conceptually underpin the original theorizing of social shaping of technology: **Interpretive Flexibility** (inspired by the empirical

programme of relativism linked to the social studies of science – Collins, 1975; Pickering, 1984; Pinch, 1977, 1986), **Relative Social Group, Closure and Stabilisation,** and **Wider Socio-cultural Context**. Interpretive flexibility suggests that technology design is contingent on varying influences of social conditions and circumstances of development. In other word, there is likelihood of varying design possibilities as a function of myriad of different social groups with varying views and interpretations of what technology is meant to address. Therefore, technological materials are results of groups' negotiations and consensus.

Relevant Social Group in the view of Pinch and Bijker (1987) comprises "all members of a certain social group who share the same set of meanings, attached to a specific artefact" (pg. 30). Therefore, different relevant social groups demonstrate varying unique interpretations and meanings concerning the artefact. Hence, the outcome of technology development emerges from a process of multiple determinations and interpretations. Technological artefact or design emerge not because it solves some problems or addresses some objective in a sense, but because relevant social groups all concede and accept that it works for them (Bijker 1995, p.270).

Closure and Stabilization implies a final, negotiated technology design modification by all groups concerned after initial intergroup squabbles and conflicts as a result of different interpretations concerning the definitions and images of an artefact.

Wider Context refers to the socio-cultural and political environment within which technology development process emerges. Specifically, it refers to the background environment and general conditions of group interactions and relations with one another with respect to the operating rules and regulations guiding their interactions. It also extends to varying factors that potentially cause differences in intergroup power and influence. Such context is therefore not adequately analysed in the conception of social shaping theory.

3.5 Criticisms of Social Shaping

Despite its contribution towards a broader understanding of the process of technological development, social shaping perspective has come under some criticisms. Its conceptualisation of society as comprising of groups, according to Winner (1993) presents a pluralist conception of society. The assumption of equality of all relevant social groups in the theory, according to some critics fails to recognise power asymmetry between groups.

The theory has also been criticised on the grounds of structural exclusion. Since only relevant social groups are likely to be empirically identified as having a shaping influence in the conception and development of a particular technology, "we can identify what social groups are relevant with respect to a specific artefact by noting social groups mentioned in relation to that artefact in historical documents" – Bijker, 1995, p.46), other vital social groups who are indirectly involved in technological design and development process are likely to be excluded. Thus, a major

variable/factor in technological design process and development might be undetected or unrecognised.

Also, according to Williams and Edge (1996), not all groups could be allowed to participate in the design process. Also, a number of groups may just be set of sub-groups on behalf of whom some will speak (Rusell, 1986). Moreover, it has been observed (Haard, 1993) that the process of technology development may be encumbered with inter-group as well as intra-group controversies and conflicts.

The view that groups' interactions would ultimately result in negotiations and lead to consensus, as well as other assumptions is considered too agency-centric, and thereby fails to take cognizance of intergroup power differential and other links with structural make-up of society. Related to this is the criticism concerning the theory's apparent disproportionate emphasis on agency-based analysis at the expense of social structure implications.

Social structure considerations, by and large, shifts focus of analysis to groups' relative abilities in shaping technology construction and development. Structures are defined as "specific formal and informal, explicit and implicit ''rules of play'' which establish distinctive resource distributions, capacities, and incapacities and define specific constraints and opportunities for actors depending on their structural location. Power and its operations are then understood within this structural context. The rules of play that define structures give certain actors advantages over others by

endowing them with valued resources or indeed by serving as resources themselves" (Kleinman, 1998, p. 289).

Structurally, it is argued that social groups possess varying powers/capabilities to employ their distinct meanings, interpretations and resource controls towards influencing technology development. Also, due to power imbalance and resource control variation, some groups would probably enjoy more control over others in influencing technology. As a result, "the final consumer may have little opportunity to engage upon the design and development of such artefact (e.g. domestic goods) other than the 'veto power' to adopt or not" (Williams and Edge, 1996, p.878). Therefore, varying structural features and characteristics of social groups would define their relative capacities to shape outcome of technology development process.

Ultimately, it is pointed out that "an explanation of technological change must show not only what different social groups think about an artefact, but also what they are able to do about it – their differing abilities to influence the outcome of its development and adoption. Thus, we must relate not only their objectives to their social location, but also the resources of knowledge and power with which they can bring about change to suit those objectives" (Russell, 1986, p. 335-336). Recognising this social structure consideration in social shaping analysis, it is argued, would enrich understanding of technology development and provide a broader approach to analysing and understanding the relationship between technology and society in development debate.

It has also been noted that stronger emphasis on the influence of social context and relations on technology tends to overlook the valid argument of technological determinism to the effect that technology has impact/influence upon social context and relations. In other words, there is reciprocity of relationship between technology and society. Technology and society are not separate, independent entities, but have mutually influencing relationship.

In view of the above criticisms, this study modifies the Social Shaping Theory, reinforces it with a new concept of 'Symbiotic Interactionism', and adapts it for the investigation. Essentially, 'Symbiotic Interactionism' suggests a much clearer hybrid of the main ideas of technological determinism and social shaping theoretical perspectives in a mutually-influencing relationship. The modified social shaping perspective, when described with the new concept argues for 'mutually-influencing inter-activity' in explaining the relationship between technology and society – the interaction/relationship between technology and social relations/context is mutually influencing. In other words, as technology impacts society and institutions within it (technological determinism), prevailing factors in the social contexts/relations also influence technological choice, and shape its impact in change process (social shaping).

3.6 Towards an Adapted Social Shaping of Technology

Technology and social factors interrelate and interact in a 'seamless web' which promotes, acknowledges and encourages multiple determinations of technologies (Hughes, 1986). According to Jackson (1996), the nature of information and

communication technologies devices as well as other technologies tend to predispose us to thinking that they could exist independent of any context of use. Conversely, they continuously change, adapt, and are reconstituted through their interaction with social and community contexts. Social contexts hold the key for deeper understanding of technology in terms of its material nature, capabilities and impacts. They (social contexts) are where technologies are embedded. It is therefore unthinkable to describe technology without reference to social contexts.

The relationship between technology and society could hardly be explained from a myopic perspective of uni-directional cause-and-effect-sequence which technological determinism suggests in its analysis of socio-economic change. Accepting this perspective would seem to give a narrow, partial account of mutual, reciprocal influence of association between technology and society.

In clear terms, it is not implied that technology has no social impact in society or what (Smith and Marx, 1994) referred to as 'soft' determinism, but that such probable impacts are contingent on specific contexts at play. The design, appropriation and usage of technology would be reflective of socio-cultural and economic contexts of the environment in which it is situated, and such specific reflections would likely result in varying implications and outcomes.

In relations to the study, the varying socio-economic and cultural contexts of ICT's recipients/audience/users imply a moderating, mediating or shaping influence in its development impact. Therefore, it will be argued in the course of this study that

social shaping framework seems the most appropriate theoretical perspective for the study.

3.7 Critical Reflections on an Adapted Social Shaping Framework

One of the most daunting challenges encountered in the course of this project is settling down to an appropriate theoretical perspective that can give a balanced, complete picture that deepens understanding of the relationship between technology and society. Specifically, identifying among myriad of theoretical postulates, the most suitable in guiding empirical work and developing a broad understanding of the impact of ICT (as mediated by specific social context) in facilitating productive efficiency of small and medium businesses.

Virtually every major perspective (albeit with different focal emphasis) tends to privilege either technology or social factors in their explanation of the interaction between technology and society, such that hardly any perspective seems able to articulate a universally-applicable explanation of the mutual, symbiotic relationship between the two. In other words, the focus of each perspective suggests a partial, narrow and incomplete account of the mutual interactivity between technology and society.

- **TECHNOLOGICAL DETERMINISM**: The focus here is on technological factors as drivers of socio-economic change with deterministic outcomes. This perspective underpinned most of the earlier studies that dwelled on the relationship between technology and society. The perspective is rooted in all

substantive theories of technology tradition. The underlying assumption is that technological factors are driving, deterministic, causal force in change situations. But the direction of such change outcome is not clearly articulated in this tradition. Also, the reciprocal influence of human agency and social structures in design/usage of technology, as well as the significance of social context in shaping technological outcomes is de-emphasised. This tradition also fails to provide rational account and explanation for varying technological change outcomes as evident in different social contexts. Rather, it is a linear, one-directional approach to understanding and explaining technology and society interaction.

- **ACTOR NETWORK THEORY**: Contrary to technological determinism, this tradition acknowledges the mutual, dynamic influence/interactivity between technology and society. They (society and technology) are perceived to shape each other. It views the world as human-machine system where human agency and technology (also referred to as actors, or actants) mutually influence each other within a network in a continuing process. Neither human agency nor technological artefact is accorded pre-eminence over the other. There is however no clear distinction between human and material agency, a situation that makes it empirically difficult to examine interactivity between them with a view to understanding the interplay between human and non-human agency.

- **STRUCTURATION THEORY**: According to Orlikowski (1992), human invented technologies and adapted them as tools for facilitating socio-economic targets. Also, there is a mutual interactivity between technology and society. Technology is shaped by social factors and social processes are also shaped technology. A major downside of this perspective is the conceptualisation of agency as the ability of humans with regards to 'make a difference' (Gidden's 1984) or exacting an effect. In this respect, agency is attributed to humans alone. In other words, it is implied that only human agency in material technology cum human/society interplay could act as agent or bring about an effect. By attributing agency to human alone, this view fails to account for the reciprocal effect technology also exacts on social factors in the relationship. Actor network theory, by attributing agency to both technological artefact and human (both exact effects) fare better in this regards.

- **SOCIAL SHAPING**: Its overarching assumption is premised on the role of social context in influencing ICT architecture, content and design and moderating their impact in society. This perspective privileges social contexts/factors as major determining forces in the type/nature and form of technology uptake and appropriation. It argues that human factors as well as other wider social imperatives/issues influence technology choices. Essentially, this perspective attempts to dwell on the rationale behind technology adoption and appropriation in organisations by explaining not only what but also why particular ICT systems are appropriated, shaped and

used for specific purposes in organisations. However, major downside is that the theory tends to de-emphasise the reciprocal influence/impact of technology (technological determinism) on the society. The relationship between technology and society is symbiotic. Society and technology, according to (Callon and Latour, 1992) mutually shape each other.

Considering the nature of relationship between technology and society in real world, a complete, balanced perspective will be such that emphasises mutually interacting, symbiotic association between the two, with clear distinction for the purpose of empirical analysis. This is because the relationship between technology and society could hardly be explained and described to be unidirectional, one-way traffic, but an on-going, dynamic interactivity where both mutually influence and shape each other to bring about social change.

Having examined other major perspectives described above, social shaping (with its strong emphasis on social context) seems to be the most appropriate for developing an understanding of the impact of ICT in business performance of SMEs. The perspective suggests that technology impact will be shaped and mediated by social context. However, since the study intends to develop a holistic picture of the impact of ICT in business performance of SMEs, in Lagos, Nigeria as mediated by social context, it is pertinent to take cognizance of the interplay and reciprocity between technology and social context in which it (technology) is situated.

Therefore, for the purpose of this study and because the theory (social shaping perspective in its main assumption) appears to downplay the reciprocal influence of technology on social context (technological determinism), this element is incorporated into the theory as an adaptation/modification, so as to provide a complete, more robust account and explanation of the relationship between technology and society. Hence, the modified social shaping will explain how and to what extent ICT and social context mutually influence each other.

3.8 Appropriateness and Relevance of Social Shaping Framework to this Study

It is pertinent to further clarify the relevance and appropriateness of social shaping perspective in the context of this research work. This is particularly necessary against the background of the prevailing and general assumption that is often associated with social shaping as being exclusively limited to design/development, production and form of technology. In other words, some writers and researchers (for example Bijker, 1995; Winner, 1993) mistakenly interpret and think of social shaping as operating only in the design, development and production of technologies – in the design and production of technologies according to certain social values and preferences, but not the selection, adoption and adaptation of the existing technologies to different community needs.

However, social shaping also applies to adaptation and selection of the existing technologies (i.e communication technologies) by different communities according to their specific prevailing socio-economic and infrastructural circumstances. Social shaping extends beyond the design and production of technologies, to exploring how

social outcomes are achieved in the selection and adoption of technology (Williams and Edge, 1996). According to them “particular economic and social contexts create selection environments which pattern a series of innovation” (p. 868).

This process also indirectly shapes the design or re-design, content, form as well as nature of technologies that get produced or re-produced through the feedback process of the market/users back to the producers. While it is noted that the field of social shaping research commenced from the design of technology, there is a “need to look at whole ‘circuit of technology’ from design and production through to consumption and use, to understand how technologies and the social implications are shaped” (Cockburn and Furst-Dilic, 1994, p.3).

Therefore, social shaping research encompasses myriad of different social situations, circumstances and processes of technology adoption and selection, from design and development through production and usage, as well as the mediating influence of socio-economic forces (Williams and Edge, 1996).

3.9 Chapter Summary

This chapter described the basic tenets of social shaping theory and articulated major criticisms against it. Nevertheless, it defended the theory and fervently argued that the modified social shaping perspective offers a broader, more robust perspective towards understanding technology and analysing the mutually influencing relationship between it and society. It is also argued that the perspective, in particular offers a better alternative towards understanding/explaining technology and society

interaction than the simplistic, linear and one-directional approach of technological determinism.

Furthermore, the chapter explained how the social shaping theory was modified and adapted for this investigation. The theory was modified to accommodate the reciprocal influence of technology on social context (technological determinism) which is downplayed in its main assumption. It was argued that the modified social shaping theory will guide towards explaining how and to what extent ICT and social context mutually influence each other. In addition, it would provide a complete, more robust account and explanation of the relationship between technology and society.

The chapter concluded by clarifying the relevance and appropriateness of social shaping perspective in the context of this study.

CHAPTER FOUR

Methodology

4.0 Introduction

This chapter addresses the methodological concerns that are associated with this study. It discusses relevant methodological and other related issues stated below:

- Epistemological and Ontological Perspectives on Social Reality
- Philosophical Underpinnings
- Justification For Adopting Nigeria As Case Study Within Developing Economies and Sub-Saharan Africa
- Study Area: Lagos State
- Profile of Lagos state, Nigeria
- Justification for Targeting Small and Medium Scale Firms.
- Fieldwork Design.
- Sample Table
- Research Design.
- Research Strategy
- Research Method
- Limitations of the Study and what these mean for Future Research Direction
- Chapter Summary

4.1 Epistemological and Ontological Perspectives on Social Reality

Positivism: is an epistemological position and philosophical worldview that ascribe primacy to scientific methodology as the basis for discovering truth about social

phenomena. A conceptual viewpoint often associated with philosopher-cum sociologist, Auguste Comte, it advocates the supremacy of verifiability, observation, experience and sense in uncovering authentic knowledge concerning an object of investigation. Projecting the same assumption as realist ontology, social reality is deemed to exist 'out there', therefore knowledge about it is independent and objectively measurable. In the context of studying ICT impact in facilitating business performance, this philosophical position would lean towards quantitative research approach without giving corresponding consideration to the subjective social context and factors, and how they might moderate or influence technology's impact in business performance.

Interpretivism: Conversely, interpretivism as an epistemological position holds similar view with constructionist ontology. Our knowledge of social world/reality is a product of individual construction and interpretation. Such knowledge relies on our "capacities to literally 'make sense' of a reality which, of itself, has no inherent properties, no order, no structure" (Denscombe, 2010, p.119). This philosophical thinking would ultimately direct researchers towards qualitative approach.

Critical Realism: A post-positivism philosophical position which benefits much from the work of Roy Bhaskar (1986, 1979, 1975) and often described as an hybrid of positivism and interpretivism, critical realism neutralises positivism by its swift opposition to certainty and absoluteness with respect to facts about social reality. Scientific methods of inquiry are judged to be limited in their capacity to uncover the

reality of social world in its entirety. This philosophical position is underpinned by the following assumptions:

- Existence of reality independent of any individual's experience, knowledge or interpretation, but not always observable by social scientific methods: Critical realism admits real, independent existence of both social and physical phenomenon, but denies they are always observable by our senses of sight, touch, smell or sound. In other words, there are real social and physical phenomena (i.e. socio-economic status, educational qualification, attitude, perception and so on) that exert some form of influence on our socio-economic lives but can neither be directly observed nor measured (Denscombe, 2010).
- Impact of social reality is not always definite and predictable: Effect of social reality is not always 'given', predictable, or follows a simple cause-effect pattern. Such effect/impact is rather probabilistic. For illustration, critical realism would argue that 'ICT impact' is real and could be demonstrated by efficiency in productivity. Firms which deploy ICT systems achieve greater performance/productivity than those who do not. In other words, ICT has a causal influence on productivity. However, this might not presuppose that every firm that deploys ICT systems would experience higher productivity. It only implies that firms with ICT systems are at vantage positions and have better chances of boosting their performance. "The effect occurs in terms of probability - not certainty" (Denscombe, 2010, p.125). Also, social word is replete with multiple, yet unobservable causal factors. So, it would be misleading and unwarranted to explain with certainty effect of any

phenomenon under investigation on the basis of what is only observable as causal factors.

Empiricism: As an epistemological theory, empiricism is somewhat similar to positivism. It stresses the role of sensory perception, verifiable evidence and experiential data in arriving at truth or knowledge about social phenomena, reality, or object of investigation. It basically establishes that knowledge or truth about reality or any element of social inquiry is derivable from sensory experience (a posteriori). In other words, social investigators should focus on respondents' sensory perception, experience and let observational data 'speak for themselves' rather than relying on subjective revelation, intuition and reasoning.

In contrast to empiricism, (even though both positions might not be mutually exclusive – a researcher or philosopher can both be rationalist and empiricist in approach – Lacey, p. 286-287), **Rationalism** asserts that the basis of knowledge, reality or truth is not sensory but intellectual. In other words, it is "any view appealing to reason as a source of knowledge or justification" (Lacey, p.286). It is an epistemological position that argues for the supremacy of logic, intuition and reasoning as against sensory perception in predicting and explaining behaviour, "in which the criterion of the truth is not sensory but intellectual and deductive" (Bourke, p.263). In other words, "that reason has precedence over other ways of acquiring knowledge' and is 'the unique path to knowledge" (Audi, p. 771).

Also, according to Immanuel Kant (1724 – 1804), while it is undeniable that sensory experience (empiricism) is fundamental to attaining human knowledge concerning reality, intuition, logic and reason would be necessary for processing and articulating the experience into coherent thought. In other words, both experience and reason are sine qua non for attaining human/ social knowledge. In relation to investigating ICT impact in business performance of small and medium enterprises, the data collection and analysis approach attempt to reflect a synthesis of empiricism and rationalism. Reality, truth and knowledge about ICT impact will be established by measuring respondents' responses from both epistemological viewpoints.

Logical Empiricism: This argues for a synthesis of sensory perception and elements of mathematical logic as the basis for arriving at knowledge about social phenomena. In other words, it combines sense data/evidence/observation with components of rationalism. Also referred to as logical positivism or neo positivism, some of its contributors (Gottiob Frege, Hans Reichenbach, Ludwig Wittgenstein, Moritz Schlick, Otto Neurath, Rudolf Carnap and a host of others) are of the view that for any set of propositions or sentences to make sense and be meaningful, it must be logical and verifiable. Relating this perspective to the context of ICT impact study in business performance, measurement of the outcome variable should follow a logical process and be such that could be replicated (given the same circumstance/context) for the findings to be meaningful and acceptable.

Dialectical Materialism: This essentially argues that history is made as people in society often engage in class struggle to realise dream targets. To this end, there is a

constant interaction between subject and object – people and society. According to the theory of Critical Realism (which is the modern interpretation of dialectical materialism), people's sense data are representations of external world – objects, events, and so on. Often associated with the work of Roy Bhaskar, it partly states that "in order for scientific investigation to take place, the object of that investigation must have real, manipulate-able internal mechanisms that can be actualised to produce particular outcomes" (Bhaskar, 2003). This seems to suggest practical scenario and practice in typical experimental studies.

4.2 Philosophical Underpinnings

A philosophical worldview (stated or implied) always underlies a social investigator or researcher's choice of design, theoretical perspective, strategy and other methods of data collection. Researchers would approach their tasks from varying philosophical considerations with respect to ontological, epistemological, axiological and rhetorical viewpoints (Creswell, 1994).

Invariably, these varying outlooks/viewpoints are by-products of, or influenced by education, trainings, experiences, kind of research problem under consideration or research public/consumers. Some (researchers) view reality from subjective outlook and would rather interact closely with sample of respondents, while others would, as much as possible empirically, choose to establish an objective investigation using experimental or survey tools (Creswell, 1994). Usually, researchers choose their varying perspectives or philosophical positions without necessarily being aware of them or their attendant implications.

In the context of this research, the first philosophical worldview/outlook to be examined concerns ontology – the nature of reality. What is the nature of the phenomenon being studied from a social shaping perspective? Could the subject of study 'impact of ICT on firms' performance/productivity' be viewed as having an objective, independent existence from social context? Or is the 'impact of ICT' an outcome of or shaped by varying social contexts where it (ICT) is embedded?

From the perspective of positivist advocacy, argument would favour an objective, independent reality of 'impact of ICT on firms' business performance'. Such 'impact' would be argued to be independent of any social contexts or actors. According to Blaikie (1993), "only that which can be observed, experienced by the senses, can be regarded as real and therefore worthy of the attention of science. Human activity is understood as observable, material circumstances. Social reality is viewed as a complex of causal relations between events, which are depicted as an emerging patchwork of relations between variables. The causes of human behaviour are regarded as being external to the individual" (p.100).

The prevailing theoretical perspective to the study of ICT and socio-economic change – technological determinism implies that technology's use and impact in socio-economic process/change has an objective, independent existence from social contexts and actors, and exact its influence and impact accordingly. Such impact is believed to be measurable objectively, and their effects could therefore be predicted.

In contrast, Strategic Choice Model states that technology's use and effect/impact does not exist independently from social agents/actors. In other words, it is argued, according to Blaikie (1993) that social reality is socially defined, and does not have independent existence. He explains: "the study of natural phenomenon requires the scientist to invent concepts and theories to describe and explain; the scientist has to study nature, as it were, from the outside. Through the use of theories, the natural scientists make choices about what is relevant to the problem under investigation.

The study of social phenomena, on the other hand, requires an understanding of the social world which people have constructed and which they reproduce through their continuing activities. However, people are constantly involved in interpreting their world – social situations, other people's behaviour, and the natural and humanly created objects" (p.36).

According to Guba and Lincoln (1994), "Human behaviour, unlike that of physical objects, cannot be understood without reference to the meanings and purposes attached by human actors to their activities" (p.106). Therefore, drawing insights from the basic interpretive assumption of strategic choice models, the impact of ICT/technology would depend on the constructed social world of actors/agents. Varying social worlds, situations and usage would produce varying social realities. This assumption would favour a research strategy that privileges gathering of subjective data on the social phenomenon under investigation.

The social shaping theoretical perspective adopted for this study does not deny that technology/ICT has impact/effect in socio-economic change, but only stresses the view that social contexts mediate, moderate/shape such potential impact. Therefore, both strands of ontological cum epistemological worldviews – objectivism/positivism and subjectivism/interpretivism are relevant to the investigation. In other words, the methodological choices with respect to 'the modified social shaping theoretical framework' adopted for this would be employed to elicit and generate empirical data from both objective/positivist and subjective/interpretive viewpoints in connection with the subject of investigation 'impact of ICT on SMEs' performance/productivity'.

Epistemologically, research philosophical consideration attempts to address the issue concerning the nature of knowledge. What constitutes the source of knowledge with respect to the social phenomenon under investigation? Is social knowledge as regards the subject of study (ICT impact) gained in the context of material technology or in the social context where technology is embedded? The social shaping assumption would view social knowledge to be a moderated and shaped outcome of technology's effect or impact.

Also, the impact of technology on socio-economic process/change will be shaped by existing social context/factors; and different ICTs outcomes could emerge from varying socio-economic contexts. In other words, there could be variation in socio-economic outcomes as a consequence of ICTs usage, depending on the prevailing social context/factors.

4.3 Justification For Adopting Nigeria As Case Study Within Developing Economies and Sub-Saharan Africa

Technological and economic backwardness is often associated with developing economies and Sub-Saharan Africa (SSA). This view is expressed in the context of much rapid advancement in ICT-enabled socio-economic development in the developed world (Edoho and Udo, 2000). The continent is perceived as occupying the bottom of the pyramid in ICT revolution. It lags behind in an era of global competitiveness, where ICT is seen as catalyst to socio-economic and political empowerment. Communication technologies are now intricately interwoven into almost every facet of commerce, education, health, governance and other aspects of social life, thus serving as catalyst to global wealth creation (Opoku, 2004).

In addition to the relative poor position Africa occupies in the battle for access and effective utilization of ICT to drive socio-economic and political empowerment, a digital divide still exists within each country (Nigeria inclusive) in the region. According to Opoku (2004), this situation is exacerbated by socio-economic inequalities with regards to income, education, location, ethnicity, age, gender and occupation. Most countries in the developing world, according to a report by the World Economic Forum (2011) – "Global Information Report 2010 – 2011" are in the deepest bottom half of the Network Readiness Index (NRI) rankings of 138 nations that account for about 99% of the global total GDP.

Nigeria is Africa's most populous country with an estimated population of over 158.3 million (Trading Economics, 2011), and West Africa's largest economy. It

accounts for almost half (47%) of the West Africa's population, and is among the top eight countries with highest population in the globe (Internet World Stats, 2010). It is one of the world's major oil producers of crude oil and the biggest in Africa (Ploch, 2011). Much of the West Africa's economic transactions are warehoused in the country. It occupies a central and influential position as the economic and military superpower of the continent, always playing prominent roles in socio-economic and political stability of African countries (i.e. its mediating and stabilizing roles in civil/political unrest in Liberia, Sierra Leone, Zaire (DRC), Tanzania, Angola, Chad, Somalia, Cameroon, Sudan, Togo, Sao Tome, Equatorial Guinea, Namibia, Zimbabwe, Mozambique, Lesotho and South Africa). Its Stock Exchange situated in Lagos is the only multi-purpose financial trading hub in the region. Nigeria is also a "leading player in the African Union, the New Partnership for Africa's Development (NEPAD), and the Economic Community of West Africa States (ECOWAS)" (World Bank, 2013).

Being the largest country in West Africa, Nigeria occupies a land area of 923,768 square kilometres located between longitude 3 and 15 degree east, and latitude 4 and 14 degree north (CBN, 2000). It is situated within the tropical region, endowed with two main vegetation zones – the rain forest and savannah zones. It comprises over 250 rich and diverse ethnic groups including three dominant ethnic divisions – Hausa, Ibo and Yoruba. The country is made up of 36 states spread over six geopolitical zones with 774 local government councils.

Economically, Jegede (2002) relates that about 90 percent of Nigeria's revenue annually is derived from petroleum products. It exports about two million barrels of oil a day and is ranked as the seventh largest country in terms of global oil reserves/deposits. Prior to discovery of oil in 1960s, Nigeria's economy was founded on a well-diversified agricultural sector that ensured 94 percent of food provision and consumption was sourced locally. The sector also supported about 75 percent of the population and provided 68 percent of GDP and as well as 78 percent of exports.

Also, there was a rapid and sustained GDP growth at 5 percent annually with an estimated income of per capital at US$90 (World Bank, 1996). However, this economy trend/pattern changed due to a number of factors: stagnation in agricultural sector growth as a result of tax burden; growing demand for import protection by emerging/growing industries; discovery of and emergence of petroleum product as a leading foreign exchange source.

Despite its enormous natural and human resources, 70% of Nigeria's population live below the poverty line (Lamido, 2010). Available statistics show that Nigeria's poverty rate was 46% in 1996 (Ezigbo, 2009). The rate increased to 67.8% in 2002 (Jegede, 2002). In 2009, the poverty rate had reached a record 76%, with most of its citizens resident in rural areas (Ezigbo, 2009).

Nevertheless, Nigeria is arguably credited with the fastest growing telecommunication market in the continent, owing to the government liberalisation programme in the telecommunication sector. There has been a regular and

astronomical increase/rise in mobile telephony subscription since year 2000 – from 30, 000 in the year 2000 to 8.5 million in 2004 (NCC, 2005). The country's mobile telephony subscription base is currently over 70 million, largest in Africa. Nigerians actively using mobile telephony have grown astronomically in number, but landline subscription and usage in the country has dropped (Charles et. al., 2007). The growth in the telecommunication sub-sector has positively inspired and impacted entrepreneurship, leading to increasing opportunities for small and medium businesses in the form of franchises, retailer ships, dealership and other associated value added services (Tella et. al., 2007).

Therefore, in addition to other factors mentioned in this narrative, the choice of Nigeria as a case study and representation of developing economies and Sub-Saharan Africa is informed by its strategic position as a regional economic superpower within the continent. It is thought that the research outcomes/results would give an indication of the trend, as well as inform ICT policy design in other African/developing countries with similar political, cultural and socio-economic situations/circumstances, with respect to the potential impact of communication technologies on the performance of small and medium businesses operating in different context – the affluent and disadvantaged districts.

4.4 Study Area: Lagos State

Lagos state is Nigeria's economic nucleus – much of the country's wealth and economic concentration is based in the state. Lagosians (its residents), spreading across 20 Local Governments Councils plus 37 Local Government Development

Areas (a total of 57 Local Government Areas), range from the very affluent, upper class community (most of whom live around Eti-osa Local Government Area – Lagos largest business concentration with the upper class residential communities of Victoria Island and Ikoyi) to the very poor (often residing within the Lagos Mainland suburbs of Mushin, Oshodi-isolo, Ajegunle and so on). The state is the most famous, heavily populated, mostly urban settlement in Nigeria, which, according to the official results of 2006 National Population Census inhabit 8,048,430 residents – figures perceived by the United Nations and other global population agencies to be at variance with projected estimates.

However, the enumerated figure for social planning conducted separately by Lagos state government at the same period put the population at 17,553,924. In spite of this discrepancy, the state (which was also former capital of Nigeria 1914-1991), and initially inhabited by the Awori tribe of the Yoruba race, is credited to be the most populous city in Africa after Cairo and Kinshasa.

According to the United Nations prediction (1999), the Lagos metropolitan area which inhabited about 290,000 in 1950 was estimated to be on record target of exceeding 20 million by 2010 and therefore become one of the top ten most populated cities in the globe.

The state is also currently estimated the 7th fastest growing city in the world and the second in Africa. Being Nigeria's industrial haven and business epicentre, all the country's financial institutions are strategically represented across the state – with

most of their headquarters conspicuously located in Marina and Victoria Island. Geographically, Lagos is situated in the South-western Nigeria, by the Atlantic coast in the Gulf of Guinea, west of the Niger River delta.

4.5 Profile of Lagos State, Nigeria

BRIEF HISTORY: Lagos state, officially created on May 27, 1967 in the wake of restructuring of Nigeria into 12 states is situated in the south-western part of Nigeria and occupies the narrow coastal flood plain of Bight of Benin (Lagos State official website). It was originally founded and inhabited by the Yorubas of Awori descent (Peil, 1991).

With five administrative areas of Epe, Lagos Island, Ikorodu, Badagry and Ikeja, the state is bordered in the North and East by Ogun State of Nigeria, in the South by the Atlantic Ocean and in the West by the Republic of Benin. It is laid on longitude 20 42 degree East and 3 22 degree East respectively and between latitude 600 22 degree North (Lagos State official website).

According to Okusipe (2001), the state is an indigenous Yoruba settlement whose development dated back to the 15th century as a trade enclave cum seaport. Prior to its annexation as a British colony in 1861, it was an epicentre for slave trading in Nigeria. “Britain annexed the city in 1861, both to tap the trade in palm products and other goods with the interior and to suppress the slave trade” (Okusipe, 2003).

Having become part of the British protectorate of southern Nigeria in 1906, the state later emerged as an integral part of the coastal colony of Nigeria in the wake of the 1914 historical amalgamation of southern and northern parts of the country. Lagos state was the capital of Nigeria for 31 years (1960 – 1991).

Because of its strategic economic position for facilitating exportation of goods from other remote parts of Nigeria, Lagos became a dwelling site for the British colonial imperialists. The residential settlements occupied by the colonialists were secluded, affluent region often referred to as government reserved areas (GRAs) till date. Such areas, which include: Ikoyi, Victoria Island, Leki-peninsula and Ikeja among others benefit from better infrastructural support systems than others, and remain exclusive residential and business sites for the affluent, high-income Nigerians and expatriates till date.

A huge socio-economic divide exists among the residents of Lagos state, from the very affluent to the very poor. According to the United Nations, Lagos is one of the 17 megacities of the world. But a significant percentage of its population live in disadvantaged, squalid settlements.

PEOPLE: In landmass, Lagos state is one of the smallest states in Nigeria – accounting for 356, 861 hectares, out of which 75,755 are wetlands. However, with population size of 17 million (more than five percent of national estimate) out of the countrywide estimate of 150 million, it is the most populous state in Nigeria. Every ethnic nationality in Nigeria is represented in Lagos state (Oladeji and Roberts, 2001,

p.1). The Yorubas constitute about 60 percent, while Hausa, Igbo and other ethnic minorities account for about 40 percent of its population.

Most of its inhabitants (85 percent) reside around metropolitan Lagos – an area spreading across most of the local government councils in the state, representing 37 percent of the entire landmass of Lagos (Lagos State official website). Annual population growth rate is in the region of 600,000 coupled with a density of 4,193 individuals per square kilometre. In the relatively crowded metropolitan Lagos, population density is above 20,000 persons per square kilometre (Lagos State official website).

According to the United Nations estimate (as reported in the Lagos state official website), having taken into consideration the annual growth rate of Lagos, the state is on course to become the largest megacity in the globe by year 2015 after Tokyo and Bombay in Japan and India respectively.

Going by the most current official census (2006) conducted by Lagos State government, the city's population by sex across the 20 local councils is captured in the box below:

Local Government Council	Male	Female	Total
Agege	564,239	468,825	1,033,064
Ajeromi-Ifelodun	723,644	711,651	1,435,295
Alimosho	1,099,656	947,370	2,047,026
Amuwo-Odofin	301,012	223,959	524,971
Apapa	264,728	257,656	522,384
Badagry	187,427	192,993	380,420
Epe	153,360	170,274	323,634
Eti-Osa	460,124	523,391	983,515
Ibeju-Lekki	49,613	49,927	99,540
Ifako-Ijaiye	380,112	364,211	744,323
Ikeja	328,778	319,942	648,720
Ikorodu	364,207	324,838	689,045
Kosofe	527,539	407,075	934,614
Lagos-Island	461,830	398,019	859,849
Lagos-Mainland	326,433	303,036	629,469
Mushin	684,176	637,341	1,321,517
Ojo	507,693	433,830	941,523
Oshodi-Isolo	514,857	619,691	1,134,548
Shomolu	517,210	507,913	1,025,123
Surulere	698,403	575,959	1,274,362
State Total	9,115,041	8,437,901	17,552,942

Source: Lagos State Official Website

“Lagos is among the world’s most expensive cities, yet a majority of Lagosians are poor by both local and international standards” (Peil, 1991, p.101). Majority of its disadvantaged residents live in high-density areas such as: Bariga, Agege, Ajegunle, Isolo, Oshodi, Shomolu, Shogunle, Mushin and so on. These areas “provide low-cost rooms, often in very poor conditions, for a majority of the city’s poor, in locations which are relatively convenient to industrial employment or amenable to self-employment” (Peil, 1991, p.28).

There is however a considerable number of rich residents who choose to live among their kinsmen in low-income, crowded areas “from Lagos Island and Ajegunle to Agege and other northern suburbs. This is partly a question of where successful men have found land to build and partly the need to stay close to business interests or the desire to remain with kinsmen” (Peil, 1991, p.26).

The number of blights/slums inhabited by the low-income residents of Lagos has been on the increase since 1980s. The state government acknowledged 42 of such blighted neighbourhood in 1983. Results of a survey conducted by Omirin and Nubi (2006) established that over 70 percent of metropolitan Lagos is blighted.

According to the UN Habitat (2006), 62 of the 2,600 communities in Lagos state were classified as slums in 1995. This had risen to over 100, going by the official report by the Presidential Committee for Redevelopment of Lagos Mega-city (Federal Republic of Nigeria, 2006). Also, the report indicated that the increase in

the number of blighted areas is due to the state's failure to address the problem of inadequate housing for the poor.

Also, Femi Olokesusi's (2011) analysis of primary data of UN-Habitat on AN Urban Inequalities Survey (UIS) jointly conducted in Lagos in 2005 by Nigeria National Bureau of Statistics (NBS) and UN-Habitat revealed that most of the inhabitants of the disadvantaged areas reside in Ajeromi Ifelodun, Amuwo-odofin, Lagos Island and Shomolu Local Government areas. Most of the dwellers in these areas engage in informal businesses ranging from small scale enterprises (largely on self-employment basis) to other petty income generating ventures.

Generally, the disadvantaged areas of Lagos State are the socio-economically deprived settlements of the city. They are characterised by low-income, poorly educated majority who often experience less government attention in terms of infrastructural support.

Ikoyi, Victoria Island and Lekki Peninsula which are all within the boundaries of Eti-Osa Local Government area are dwelling and business settlements of the affluent, upper income class of Lagos State. They (Ikoyi, Victoria Island and Lekki Peninsula) represent the cream of the most exclusive and expensive residential and business locations in the state. Victoria Island in particular is the main financial hub and business enclave of the trio with major 5 star hotels, expensive commercial real estates, exquisite private schools and a host of others. It inhabits most of the major indigenous and international corporations' headquarters.

Although Ikoyi and Lekki Peninsula share similar characteristics with Victoria Island as exclusive commercial and business enclave, they are mainly residential settlements for the high-income elite and expatriates alike. Compared to the disadvantaged settlements, the residents in the affluent districts enjoy considerable government support in terms of infrastructural provision. They are the socio-economically privileged class of Lagos society. Majority of them are well educated, high income elite of the state.

These two different districts (affluent and disadvantaged) are deliberately chosen for the study because of their obvious opposing socio-economic characteristics and contexts as mentioned above. In particular, the objective is to empirically measure how their varying socio-economic backgrounds might account for different outcomes in the performance of SMEs.

GOVERNANCE: As an independent state with a very strategic social, political and economic importance to the African continent in general and Nigeria in particular, Lagos state's profile, according to the Ministry of Physical Planning and Urban Development is captured below:

Key Information on Lagos State

- Geographical Area: Size : 3,577 Sq. Km (0.4% of National Population)
- Population:
    - ✓ 17.5 million- UN-Habitat Projection
    - ✓ 18.0 million- Lagos State Census - 2006.

- Population Growth Rate (UN Projection): Between 6-8% (Nigeria = 2.9%), Jakarta 3.1%, Tokyo 0.3% and Shanghai 0.1%
- Annual population growth: 600,000 (10 times New York City/Los Angeles)
- Projected Population: 24.5m (2015)
- 20 Local Governments plus 37 Local Government Development Areas; 2,600 Communities
- Destination for all ethnic nationalities & ECOWAS; Opportunities for improved lives
- One of 7 New Economic Partnership for African Development (NEPAD) Cities
- Lagos is the product of Nigeria's rapid urbanization process
- Headquarters of Trans-national Corporations and National Conglomerates
- Largest Stock Exchange in West Africa; Over 200 Financial Institutions
- 22 Industrial Estates (2000 Industries; 65% of Country total), 60% of Value Added Manufacturing
- 31.89% Contribution to Non-oil National GDP (2004)
- 65% of Nation's Value Added Tax
- Informal Sector Size: 65% of Working Population
- Hub of National Aviation Activities (82.61% International, 47.30% Domestic
- 3 Lighter Terminals and 3 of Nation's 8 major seaports (50% of Nation's ports Revenue
- Telecoms/Media Hub: 50% of 30m PTO/GSM subscribers
- Public Transportation = 75,000 low capacity buses
- Vehicular Density = 224 vehicles/km (country average = 15)

- Waste Generation = 10,000 Metric Tons / day
- Power Supply = Less than 1000 Mw; Need = 10,000 Mw
- Water Supply =170 million gallons per day (mgd); Need = 540 mgd

Source: Lagos State Ministry of Physical Planning and Urban Development, 2010

In a rather similar circumstance to that of the entire country (Nigeria), the governance of the state has intermittently been under the control of military dictatorship for 25 out of 50 years of gaining statehood. This has had negative implications on the stability of requisite institutional and policy framework for developmental objectives.

The situation has however been improving since Nigeria's return to democratic governance in 1999. "We grew up knowing that the country was not run well. But some 10 years ago in Lagos, a new concept of governance commenced. The Tinubu-Fashola experience is a good example of the benefits of continuity" (Guardian Newspaper, 2010, p.55).

According to Olokesusi (2011), Lagos state is administered at three levels – the state government, 20 local government councils and more than 25 local council development areas (LCDAs). Rather than adopting municipal administration system as city's governance model (like most of the large global metropolitan cities), the state government encourages and involves community development associations (CDAs) as joint partners in the development process. A total of N12.3 million was

documented to have been spent between 2001 and 2003 on community development initiatives and activities (Lagos State Government, 2007).

In an effort to drive efficiency in infrastructural development and service delivery orientation in priority areas such as: road rehabilitation, waste management, new town development, power generation, street lighting, security services and shelter provision, the state government "has developed vibrant Private Sector Participation (PSP), Public-Private Partnerships (PPP), Build Operate and Transfer (BOAT), and Build own Operate and Manage (BOOM)" (Olokesusi, 2011, p.16).

Because of its promising position as the most sought-after destination for job opportunities and other economic empowerment potentials, Lagos state attracts massive influx of migrants from other parts of the country with its attendant infrastructural support burden, security and other social challenges. The rapid ill-managed population increase puts strains on public utilities, overstretches housing support facilities and leads to the proliferation of shanties and make-shift slums as dwelling places for the majority of residents.

There is hardly any city in Nigeria that experiences housing shortage as acute as Lagos (UNCHS, 1993). The population increase also leads to a miss match between the city dwellers' housing needs and available government resources. As Ajanlekoko (2001) aptly noted, "the phenomenal rise in population, number and size of our cities over the past few years have manifested in the acute shortage of dwelling units which resulted in overcrowding, high rents, poor urban living conditions, and low

infrastructural services and indeed high crime rates". The menace of overcrowding (involving houses and streets), poor sanitation, disease control as well as other social problems have always been a challenge to Lagos state government. Each successive administration fails to demonstrate enough political resolve to address these concerns (Peil, 1991).

ECONOMY: As Nigeria's economic settlement, Lagos is adjudged the location of choice for major commercial and service industries. Small scale entrepreneurship also thrives in the city with much vigour (Peil, 1991). Economic activities along the length and breadth of Lagos are manifested in variety of forms such as: manufacturing – large and small scale, financial services, information and communication technology services, shares trading on the Nigerian Stock Exchange, petty trading of all sorts as well as children hawking variety of wares and other edibles on the streets and highways (during traffic) to support themselves and their families.

Most of the residents in Lagos including the relatively better off on salaried employment often aspire for economic independence through self-employment. Many tend to combine the two, "using the wage or salary for security while they build up a business in their spare time. Their partners and often their children are sometimes already self-employed, supplementing the meagre, often insufficient income coming into the families' coffers from paid employment in government or industry" (Peil, 1991, pg.67).

Lagos prides itself as home to multinationals, commercial institutions and largest settlement of international corporations in Nigeria. Over 2,000 manufacturing firms, 200 financial institutions (including banks, Asset management firms, discount houses, insurance companies and so on) are present in the state (Lagos State official website). The state is reputed to account for 60 percent of the country's industrial output and international investments, as well as 65 percent of the federation's commercial transactions.

Over 40 percent of Nigeria's total payable emoluments due to its entire workforce are disbursed in Lagos alone (Lagos State official website). Nigeria's major seaports, IT/telecommunication firms, public corporations and head offices of blue chip companies such as: Exxon Mobil, Shell, Chevron, UAC, Unilever, John Holts, Churchgate, Leventis and so on are sited in strategic places within the state.

SOCIETY AND INFRASTRUCTURE: As one of the world's fastest growing (in terms of population) metropolitan settlements, albeit unplanned/uncoordinated, Lagos success in this respect constitutes a source of administration nightmares to the government. Much of the city's road network is in a complete state of disrepair, making transportation within the city a very hectic experience. Forms of commercial road transportation in Lagos vary from bike taxi (locally called Okada), which is arguably the cheapest, yellow taxi, red cab for hire, local buses and car rentals.

Heavy traffic is noticeable in virtually every nook and cranny of the city with hazardous carbon monoxide and heavy metals in the form of lead, iron, cadmium

and zinc spewing out from the exhaust pipes of the ubiquitous bike taxis and some other rickety vehicles often plying the roads. The situation is compounded by road side traders who often display their wares indiscriminately on the road paths without due regard to vehicular traffic situation.

According to Okuneye et. al. (2007), it is "a general picture to see so many markets almost covering 50 percent of the roads". Commonest street foods which are often displayed such as: roasted plantain, roasted corn, roasted yam, sausage rolls, meat pies, gala and so on risk exposure to contaminants in the forms of Lead (pb), Cadmium (cd), Zinc (zn) and Iron (fe). These types of edibles are fast food delicacies highly demanded by the low-income earners (Okuneye, et. al., 2007).

In the same vein, Adekunle and Akinyemi (2004) also reported that smoked fish being displayed for sale by street traders in similar Nigerian markets contained high level of Lead (pb). Okuneye, P.A et. al. (2007) therefore noted a very strong positive correlation (correlation coefficient = 0.798 and 0.628) amongst pollutants' concentration, traffic density and population of Lagos inhabitants.

It is difficult to argue against the notion that that the high population density of Lagos state (75 percent of which is attributed to rural-urban migration according to Abumere, 2004) is at the heart of the city's social and infrastructural problems. The population increase has expanded the city to its limit, resulting in proliferation of slums and shackles, and hamper the provision, control and management of the city's roads, drainage and sewage facilities among others.

In some extreme cases, rural migrants would often defy litigation by occupying public landed property. In other words, it is commonplace to see immigrants illegally occupying undeveloped landed areas in a desperate attempt to satisfy their land needs (Agboola and Agunbiade, 2007). This often leads to an increase in the number of slum communities, thereby compounding the problem of urban management and planning in the city.

Lagos is a coastal region, which makes it susceptible to sea level rise, heavy flooding and coastal erosion (NISER 2010; Olokesusi and Olorunfemi, 2008). Due to this peculiarity and proximity to the equator, Lagos state is a typical tropical region with two climatic seasons – the wet/rainy season (April and October) and the dry season usually experienced during the remaining 10 months of the year (Ibidun, 2009). But most residents of the city always approach the rainy season with trepidation. This is because much of Lagos is susceptible to severe flooding.

Causes of this in some crowded areas of the city are, among others, "uncontrolled expansion of impermeable surfaces due to increasing urbanisation resulting in increase run-off volume, run-off responses under high intensity rainfall, building on flood plains, lack of storm water drainage, failure to maintain existing drainage systems and weak institutional capacity of the urban administration" (Ibidun, 2009, p.9).

Widespread security concern is also one of the major challenges confronting Lagos state government. High density areas such as: Mushin, Bariga, Ajegunle, Isale Eko,

Makoko, Oshodi, Ojo, Orile and a host of others are prone to crime and security tensions. Also, they "generate a high rate of poverty, diseases and epidemic, environmental pollution and urban conflicts" (Leke, 2009, p.161).

The state is ostensibly notable for blatant and extravagant display of wealth by the rich minority especially in social gatherings. This is partly linked to the widespread crime and security tensions in the city, as the socio-economically deprived often envy the better-off. Being an environment where societal values celebrate the wealthy irrespective of the source/background, Lagos state produces a considerable majority who try everything conceivable to achieve wealth at all costs, with little or no regards for legal and moral implications. This is often manifested in widespread corruption, anarchy and opportunism (Peil, 1991).

4.6 Justification for Targeting Small and Medium Scale Firms

According to the United Nations Industrial Development Organisation (UNIDO) as reported in Nigeria-based Punch newspaper editorial on July 29, 2011, SMEs are "businesses that typically employ 10 to 250 people and constitute the fulcrum of industrial take-off in an economy" (Punch Editorial, 2011). They (SMEs) have been the major catalysts to the success of developed and developing economies.

In the year 2000, United States recorded 23 million small firms which accounted for over 50 percent of private sector workforce and contributed over 50 percent in GDP. The United Kingdom recorded about 3.7 million SMEs at the same period (Punch Editorial, 2011). The Nigerian Bureau of Statistics (1996 – 1998) reported that 97

percent of all firms in the country are SMEs by definition, employing less than 100 employees. They are said to account for both 50 percent industrial output and workforce (Punch Editorial, 2011).

Generally, small and medium scale businesses constitute the life-wire of any economy. Their economic values (in job/wealth creation, efficiency and growth) in comparison to large enterprises have been articulated as strong rationale to earning government support and promotion (Hallberg, 2000).

Studies (Davis et. al., 1995; Kenings, 1995; Rutestbobya et. al., 2000; Wanger, 1995) have shown that while large corporations always resort to downsizing as a coping/survival mechanism in the wake of economic turbulence and global challenges, small businesses often tend to participate in employment creation.

Much of the global disadvantaged population depend on SMEs sector for their livelihood (Stern, 2002). According to statistics from the International Labour Organisation (ILO), 70 percent of Sub-Sahara African population depend on small and informal businesses.

Nigerian small and medium businesses have been noted to make significant contribution in: Revenue generation, Savings mobilisation, Dispersion of economic activities, Utilization of local resources, Promotion of indigenous entrepreneurship, Promotion of indigenous technology, Rural transformation and contribution to Gross Domestic Product (Lawal et. el., 1998).

Most recent statistics credited to the Nigeria's Minister of Information and Communication Technology, Mrs. Omobola Johnson at the opening of 'Google Small Business Web Fair' (2011) indicate that 70 percent of Nigeria's employment is currently provided by SMEs. However, such a significant employment generation is not commensurate with economic value contribution, as just a paltry 10 percent of the country's economic value added (EVA), according to the Minister is attributed to SMEs. This is in comparison to an average of 55 percent and 25 percent economic value added in other developing and advanced economies of the globe respectively.

This clearly shows that the Nigeria's SMEs are yet to attain their productivity potentials. The Minister attributed this to constraining local factors such as: poor ICT infrastructural support, poor skill base, poor access to finance and low rate of ICT adoption by SMEs among others.

Researchers from different persuasions have come up with varying definitions of what constitutes a small and medium scale business. According to (Anyanwu, 2001; Desal, 2000; Lawal et. al., 1998), factors such as: staff strength, investment size, profitability, net worth as well as volume of sales are viewed as objective criteria for describing such set of businesses. Also, Iginsi (2002) noted that the United States of America tend to view small businesses as those with staff strength of less than 500; the United Kingdom – not more than 200 staff; while Germany, Italy and Sweden are reported to be in the region of 300, 500 and 50 staff strength respectively. Japan defined small businesses in terms of investment and employees size – not more than 100 million yen and not exceeding 300 employees respectively.

According to Willchie Committee (1971), Australia describes small enterprise as "a business which one or two persons are required to make all the critical management decisions, finance, accounting, personnel, purchasing, marketing without the aid of internal specialist and with specific knowledge in only one or two functional areas". In the same vein, the Committee of Economic Development (CED) in the United States describes small enterprise in terms of the following criteria: relatively small size within its industry bound, local operations area, individual or small group ownership orientation and capital outlay controlled and owned by managers.

In the Sub-Sahara Africa, Kenya describes small enterprise as one that has in its workforce not more than 50 individual staff and not less than 10 (Kibera, 1996). In Tanzania, it is also defined as firm with maximum of 50 persons (Nchimbia, 1999).

And in Nigeria, going by the submissions of most regulatory/support agencies (Nigerian Association of Small Scale Industrialists, Nigerian Association of Small and Medium Enterprises, Central Bank of Nigeria, National Economic Reconstruction Fund, Companies and Allied Matters Decree, National Council for Industry, Federal Ministry of Industry, International Financial Corporation), as compiled by (George, 2007), the workforce strength usually ranges from 10 to 500, and investment size (excluding working capital and cost of land), from 2 to 150 million naira. Therefore, small and medium enterprises will be conceptualised as such in the context of this study.

4.7 Field Work Design

For the purpose of this research, SMEs to be used as cases will be included in the sample according to the following criteria:

- Significant use of ICT: There must be convincing/verifiable evidence that the cases (firms) significantly support their business operations with ICT architecture (mobile phone, internet and/or personal computer), to the extent that if the ICT systems in their operations were to experience failure or malfunctioning, their business operations, productivity and overall performance would be negatively impacted.

- Pre-existing ICT exposure: The firms to be studied (especially those to be selected for the interview – second phase of the research must have been in operations long before adopting/implementing ICT systems in their business dealings. This will make it feasible empirically to track change/impact in business performance/productive efficiency occasioned by ICT adoption/usage.

- Similarity in ALL Respects: All drawn cases (firms) will be similar in every known respect (business type, staff strength, knowledge/educational qualification of managers/employees, and so on), with the exception of differences in social contexts where they are embedded.

- Willingness/Commitment to Grant Access: The study would involve detailed and comprehensive investigation in the form of interview. It is therefore

important to secure prior demonstrable commitment and willingness from potential cases/interviewees.

- The firms (cases) of interest will (in equal number and size) originate from two different social contexts (upper, affluent community and poor, disadvantaged community). This is to ensure fair comparison on all grounds except the varying social contexts.

- Performing/Productive Business: Since the research interest is to explore ICT impact on business performance, the small and medium businesses to be investigated must be among the top, high-performing/productive entities in their industry.

4.8 SAMPLE TABLE

RESEARCH PHASE	AFFLUENT AREA	DISADVANTAGED AREA	SAMPLE TOTAL	RESEARCH METHODS
Phase 1	50 Firms	50 Firms	100 Firms	Survey - Structured Questionnaire
Phase 2	7 Firms	7 Firms	14 Firms	In-depth Study - Semi-structured Interview

As shown in the table above, the study will be undertaken in two phases: the first phase will be a survey of select Small and Medium enterprises operating in the

affluent and disadvantaged areas of Lagos state, Nigeria. Questionnaires will be administered to 100 firms – 50 each from the affluent and disadvantaged areas, out of which 14 respondents, 7 each from the affluent and the disadvantaged areas were drawn for the second phase of the study. Therefore, the second phase of the research would involve seven firms each (14 in total), drawn and interviewed from both the affluent and disadvantaged areas.

Major themes around which research questions revolve will include the following: computer/internet-based facilities and mobile telephony impact on business performance; context-mediation of computer/internet-based facilities and mobile telephony on choice/design/content and impact.

4.9 Research Design

The study would examine ICT impact on SMEs business performance/productivity. Therefore, there is a pre-supposition of causality to be investigated and established in the context of ICT (an independent, predictor variable) and business performance (the dependent, outcome variable). 'Business performance' in this study would mean working or performing work-related tasks effectively such that effort, time, energy, money and any other resource input is not wasted. It would also include increase in customer base and business profitability, improvement in customers' satisfaction as well as business expansion. Measurable indicators of such work-based tasks will include: processing staff performance appraisal, promotion exercise, training programme, recruitment exercise, loan request, leave request, grievance issues,

salary, external customer service/relations, and customers' order request and engaging in other business related operational and administrative activities.

Also, a good impact study analysis with respect to this phenomenon would require some elements of time-ordering dimension – periods before and after ICT's exposure/uptake or intervention, so as to be able to measure and track change/productive efficiency due to ICT as an independent, causal variable.

This strongly points to the appropriateness of a longitudinal design – a structural framework and research approach that would guide data collection and analysis by allowing measurement of change over time "by collecting data concerning at least two time points" (De Vaus, 2001, pg.113). Besides, causal measurement analysis requires establishment of temporal order of event, in consonance with causal assumption that a cause must precede corresponding effect in time (De Vaus, 2001).

This would enable and make it easier to draw strong causal assertions and inferences between ICT's impact (as moderated and shaped by social context) and business performance of firms. The chosen design would "allow some insight into the time order of variables and therefore may be more able to allow causal inferences to be made" (Bryman, 2008 p.49).

However, in view of cost implications (If I were to visit sample twice at least) and time consideration for the completion of study, I would opt for a variant of longitudinal approach called 'Retrospective Panel Design'. With this approach, data

collection would be creatively reconstructed such that all necessary information/data concerning both the predictor and outcome variables would be obtained/collected at just one point/time.

In other words, respondents would be asked to recall their experiences before ICT uptake, so that change could be tracked and measured against the background of their current responses/experiences. For instance, respondents with ICT exposure could be asked about their current socio-economic situation (whether as an individual or entrepreneur) and later asked to recall or provide similar information on what their experiences were before ICT exposure.

There have however been some concerns and criticisms against retrospective approach in longitudinal study, especially with respect to the possibility of a great amount of distortion (intentional or otherwise) in respondents' recall/recollections of past situations. "Not only will people not be able to recall accurately how they felt, but we know that recollections of past events are interpreted in the light of subsequent events and experiences" (De Vaus, 2001, p.127).

This research intends to use some recollection techniques and devices to enable respondents recollect and reconstruct the order and sequence of past experiences/activities. "We can work back from the present to the past or focus on ''anchor events'' and then question around these" (De Vaus, 2001, p.128). Very good and reliable data could be obtained by asking questions that explore significant milestones and memorable events in the respondents' life or business. Questions

such as: When did you start your business? How did you feel concerning your first ever profit or loss in business? What was your first experience at using mobile phone or internet like? From responses provided, "we can then, piece by piece, reconstruct how long after these memorable events other, perhaps less memorable events took place" (De Vaus, 2001, p.140).

A non-probabilistic, purposive sampling technique will be adopted to recruit respondents for the study. This would ensure only relevant respondents who are most likely to provide rich, quality and fruitful data in the context of examining causal relationship between the independent and dependent variables – (ICT impact and business performance) are recruited.

Also, this procedure is strategically adopted with a view to ensuring there is a match between research questions and sample of respondents. In other words, the relevance of respondents towards addressing research objectives and research questions would guide sample recruitment (Bryman, 2008).

The sample will be recruited in the same proportion from two communities in Lagos state, Nigeria, both with ICT access, but differentiated by socio-economic contexts or backgrounds – the upper, privileged class and the socio-economically-disadvantaged class.

Sample composition will include the following: Small and medium scale firms who have been in business before ICT (internet-based, mobile and personal computer)

diffusion in Nigeria, and whose businesses still subsist till date as well as firms who started their businesses afterwards.

4.10 Research Strategy

The study would adopt elements of both quantitative and qualitative paradigm – mixed method strategy. This will be for the purpose of: triangulation (to enable the possibility for findings corroboration); offset (to allow potential weaknesses of methods associated with each strategy be offset by each other); completeness (to allow an in-depth, broad and comprehensive investigation as well as better understanding of phenomenon); credibility (to enhance the likelihood of results/findings integrity) and to be able to elicit diversity of views/responses from the sample (Bryman, 2008).

In other words, a range of data collection methods (to elicit data from varied sources) from both quantitative and qualitative paradigm such as: interview – semi structure and survey questionnaire among others will be used. While questionnaire will be most effective for uncovering respondents' viewpoints, attitudes and reported behaviour with respect to how ICT impact on business performance in their workplace, interview (as data collection method) would generate rich, detailed, context-based data set concerning ICT impact on business performance of firms in different social contexts. Firms to be interviewed and studied shall be those that willingly accede to such requests in the survey questionnaires.

4.11 Limitations of the Study and what these mean for Future Research Direction

Limitations in the Context of Research Coverage: This research will be limited to examining the ICT impact in the context of small and medium enterprises in Lagos State, Nigeria. Although small and medium businesses constitute a major sector in any economy and are very central to national development, other major stakeholders in socio-economic development such as: Large businesses/corporations, Multinationals, Non-governmental organisations, government institutions as well as other private sectors operating in different socio-economic contexts need to be included in future investigations for a much deeper understanding of ICT impact in socio-economic process. Time and resource constraints will not allow for this extended scope.

Therefore, future research needs to accommodate these groups and note any emerging patterns and variations that could provide further insights into the relationship between technology and society. The following questions could guide future research direction:

1. What impact do ICTs have on business efficiency and performance; and to what extent does this improve organisational bottom-line?
2. In what specific business processes is ICT most effective; and how were these processes conducted before ICT?
3. What form of ICT is the most effective for facilitating business activities and why?

4. Does investment in ICT by organisations generate expected business returns?

Limitations in Research Design: But for the financial constraints and time restrictions of the study, traditional longitudinal study would have been preferred to the adopted variant of longitudinal design – Retrospective Panel Design. The traditional method would involve a series of studies over at least two time periods of about five to seven years' interval. This could make possible a much clearer and accurate measurement of change, and also reduce the possibility of distortions (intentional or otherwise) in respondents' recall of past situations. It is argued that the research design adopted (a variant of longitudinal approach – 'Retrospective Panel Design') is appropriate for this investigation in view of time and financial constraints as well as the nature of the study. However, for a much clearer and accurate indication of socio-economic change concerning use of ICT in business process, future researchers need to build in a more specific time intervals over a course of period between studies to monitor and measure any indication of change. It is recommended that further research in this field should consider time interval of between five to seven years.

Limitations in Research Methods: This study will use limited survey and comprehensive semi-structured interview methods to conduct an investigation on a purposively select small sample of small and medium businesses operating in both the affluent and disadvantaged districts of Lagos State, Nigeria concerning the impact of ICT (mobile telephony, computer/internet facilities) on their performance. The survey is intended to generate a bird's eye view of respondents' opinions on the

research questions, complemented with a more comprehensive semi-structure interview.

Specifically, it will be used as an exploratory tool; to gauge the feelings of the respondents. It is employed in this study to provide the basis for interview data gathering and analysis. Time and resource constraints are the main reasons for such a restricted sample size.

However, on reflection, it is thought that future research endeavour in this field should consider larger sample size that will be more representative, because a greater number of small and medium businesses now leverage the use of ICT to boost their business performance. Future research should also move beyond using survey as mere exploratory instrument, but should consider subjecting its data to more rigorous statistical tests (i.e non-parametric tests).

Also future research could consider additional research methods such as non-participant observation to further strengthen and corroborate survey and interview findings. Views of other departmental heads/representatives concerning their ICT usage experience could also be measured to provide further insights about the business impact of ICTs on organisational performance.

Thus, this research could serve as a pilot for future larger scale investigation. Future studies should also reflect a representation of different states in Nigeria to observe and document general patterns in the findings for policy considerations.

In view of the above shortcomings, the findings from this research cannot be generalised. However, the study will make an invaluable contribution to deepening theoretical understanding of the relationship between technology and society in general and ICT impact in socio-economic process in particular. Besides, its contribution through analytical generalizations will also be of tremendous value to policy design efforts.

4.12 Chapter Summary

This chapter has discussed key methodological concerns and other major theoretical issues that are relevant to this study. It explained and clarified key epistemological positions and other philosophical assumptions about social reality. In addition, it discussed the philosophical underpinnings of the study, an hybrid of positivist and interpretivist worldviews. Also, it articulated justifications for targeting SMEs sector and adopting Nigeria as a case study within developing economies and Sub-Saharan Africa for the research. It also described the study area – Lagos State, Nigeria and presented its detailed profile as the primary setting/source of the research data.

Furthermore, it outlined the criteria for the selection of small and medium firms as the study's unit of analysis in the sample. The chapter also presented the study's phases and discussed the research design, strategy and methods. Also, the final section of this chapter discussed the limitations of the study in the context of what should be the focus for future research efforts.

CHAPTER FIVE

Survey Findings

5.0 Introduction

This chapter presents the findings from the survey conducted through a self-designed questionnaire on the impact of ICT on the performance small and medium businesses in Lagos State, Nigeria. The questionnaire was administered in two ways:

1. Online administration – This method was used to obtain the responses of participants whose emails contacts were made available by themselves or the referrals.

2. Manual distribution/administration – Data were collected from other participants through this method.

The survey questionnaire (in Appendix 1) comprises 27 questions, and was designed to reveal the impressions of entrepreneurs managing small and medium firms operating in affluent and disadvantaged communities with respect to their experiences in using communication technologies (mobile telephony, internet and/or computer) to boost business performance. The objective was to explore how opinions might differ between firms operating in different socio-economic settings concerning the nature of impact communication technology is having in supporting their business operations.

In particular, the survey instrument was also intended to investigate what socio-economic factor (s) peculiar to each different operating environment were most likely to shape choice and impact of communication technology, and the extent of such influence in business performance of firms. The survey was merely used as an exploratory instrument. It was adopted to gauge the feelings of the respondents with a view to providing the basis for qualitative data gathering and analysis. In other words, it was only intended to generate a bird's eye view of respondents' opinions on the research questions, so it went through a very basic manual descriptive analysis – frequency and percentages. Its key findings were synthesised and complemented with a more comprehensive, context-based, qualitative analysis of semi-structured interview data based on similar survey questions.

5.1 Research Methods

From initial investigation and subsequent correspondence with Lagos State Public Relations Manager of the National Association of Small and Medium Enterprises (NASME), Lagos State chapter, there is no official accurate list or documentation of existing small and medium firms in Lagos State in particular and Nigeria in general. Therefore, the feasibility of conducting a random sampling for the purpose of statistical generalization is very remote. Miller (1991) states: "When practical considerations preclude the use of probability sampling, researchers may seek a representative by other means. They may look for a subgroup that is typical of the population as a whole. Observations are then restricted to this subgroup, and conclusions from the data obtained are generalized to the total population. Data from

judgemental samples at best suggest or indicate conclusions, but in general they cannot be used as the basis of statistical testing procedures" (p.61).

In other words, subgroup members (firms) that are typical (meeting predefined objective selection criteria) are used as representative sample of small and medium businesses operating in the affluent and disadvantaged areas of Lagos state, Nigeria. However, while this study does not intend to claim strict, unqualified generalization of findings/conclusions to all small and medium businesses operating in the affluent and disadvantaged areas of Lagos state, there is a likelihood that findings/conclusions generated by this study could be found in other similar situations. Generalizations on the basis of findings from a purposive sample could only be tentatively suggested (Dixon et. al, 1987).

Similarly, Arber (1993) also reiterates: "Where the researcher's aim is to generate theory and a wider understanding of social processes or social actions, the representativeness of the sample may be of a less importance and the best sampling strategy may be focused or judgemental sampling" (p.71). So the study relied heavily on unofficial sources (network of friends, associates and former work colleagues in Lagos State) to generate a sampling frame from which a purposive sample of 100 firms/cases – 50 each from the affluent and disadvantaged areas was drawn. This sample size was used for the mixed method (limited survey and in-depth semi structure interview) investigation of the research problem - impact of ICT (internet, mobile telephone and personal computer) on performance of SMEs in

Lagos State, and was deemed to be adequate in view of time constraints and limited resources available for the completion of this project.

The research was conducted from the theoretical perspective (modified social shaping framework) that the relationship between communication technology and society is symbiotic – technology impacts society and factors within society also shape/influence technology choice and impact. The mixed method approach adopted ensured method offset (allowed potential weaknesses of one method to be offset by the other), data credibility, completeness and triangulation as well as deepen broader understanding of the impact ICT (internet, mobile telephone and personal computer) is having on society (SMEs) and the reciprocal influence of factor(s) within the society on choice as well as impact of communication technology.

Therefore, without prejudice to other empirical and policy implications, findings from the study contributed towards the refinement and modification of Social Shaping theory by providing empirical evidence that is supportive of reciprocity in the relationship between technology and society.

In the first phase of the study, self-designed survey questionnaires were administered to a purposively select sample of 100 Small and Medium Enterprises (50 in each area) operating in both the affluent and the disadvantaged areas of Lagos state, Nigeria. Prior to the administration, the questionnaires were pilot-tested among four friends who had once run small scale businesses in Lagos state, Nigeria, but now live in England. Reason for this was to guarantee face validity of the research instrument

or to ensure that the questionnaire would actually measure what it was meant to measure with respect to the aims and objectives of the research. Various invaluable comments, specifically on format, nature of questions and diction were made by the pilot and their views/inputs were taken into consideration in the final draft of the instrument.

Major criteria for being part of this sample, besides being an SME include significant use of ICT (computer, mobile telephone and/or internet facilities). The sampling frame was made up of referrals from friends who have contacts or live within the vicinity of the sample population. Some of the questionnaires were administered online to participants whose emails contacts were made available and others were distributed manually. 33 (66%) and 26 (52%) of the sampled respondents from the disadvantaged and affluent areas respectively returned completed questionnaires, while 7 partially/incorrectly filled returned questionnaires were discarded.

For the second phase of the research, 14 (14%) of all the respondents, 7 from each area (affluent and disadvantaged) who returned completed questionnaires and had given their commitments in the survey to participate in the second stage of the research were each interviewed for an average of 30 minutes at their respective offices. Criteria for their selection for this phase were as follows:

- Significant use of ICT (mobile telephone, personal computer and internet) in business activities/operations.

- Existence as a business entity prior to the advent of ICT in Nigeria – this was meant to ensure core research questions revolving around ICT impact, its context and how impact might vary between firms operating in the affluent and disadvantaged communities are addressed.

- Interviewees were Proprietors/Founders/Chief Executive Officers or any senior management staff who are vastly experienced in every aspect of the business operations – this was to ensure they could relate vividly how their respective business/firm used to be run before the advent of ICT compared to how it is run now.

Therefore, the research method was a combination of limited survey and semi-structured interview of relevant, non-random sample of small and medium firms in Lagos state, Nigeria. The survey data was intended to generate a bird's eye view of respondents' opinions on the research questions, complemented with a more comprehensive, context-based qualitative analysis of the semi-structured interview data based on similar survey questions. Concerning interview, Jones (1985) notes: "For to understand other persons' construction of reality, we would do well to ask them in such a way that they can tell us in their terms and to a depth that which addresses the rich context that is the substance of their meanings" (p. 46) .

The quantitative (survey) data obtained from the research went through a very basic manual descriptive analysis - frequency and percentages. Participants'

responses to each question were compared between the affluent and disadvantaged areas and patterns were noted.

5.2 Survey Findings

The survey questionnaire which can be found in Appendix 1 comprises 27 questions and was designed to reveal the impressions of entrepreneurs managing small and medium firms operating in different communities (affluent and disadvantaged) in Lagos state, Nigeria, with respect to their experiences in using communication technology (internet, mobile telephone and/or computer) to boost business performance. The objective was to explore how opinions might vary between firms operating in different socio-economic environments concerning the nature of impact communication technology was having in supporting their business activities.

More importantly, the survey instrument was intended to investigate what socio-economic factor(s) peculiar to each different operating environment were most likely to shape choice and impact of communication technology, and the extent of such influence in business performance of sampled firms.

Section A of the questionnaire (i.e. Q1 – Q9) focuses on types of firm, respondents' attributes and background information. It was designed to reveal basic information about the sampled companies (types, age, number of employees, ownership structure and areas of operation), respondents' attributes (gender, age, job position/title, department, time with firm, time in position and highest educational qualification). Section B (Q10 – Q12) were designed to explore the nature of communication

technology media often used by the sampled firms, (Q13 – Q14) asked every respondent on whether they believe or not that 'communication technology improves their business performance' and if the answer is in affirmative, the extent of such improvement.

For better clarity of an 'indication of impact' communication technology is likely to have in boosting business performance, it was thought necessary to restrict respondents to questions (Q16 – Q17) only to those firms/companies whose existence predated the advent of communication technology in the sampled population (Lagos state, Nigeria) – firms who had been in existence as business entities since the pre-ICT era, and are still in operation till date. Therefore, question (Q15) of Section B is a screening question intended to identify and isolate most relevant respondents for questions (Q16 – Q17). The two questions asked respondents about the impact of communication technology usage and extent of such impact in making their companies perform better now in comparison to the pre-ICT era.

The focus of Section C of the questionnaire (i.e. Q18 – Q19) was on the nature of business activities supported by the use of communication technology in all the sampled firms, while questions (Q20 – Q21) asked respondents key objective for using communication technology in their companies. Section D, questions (Q22 – Q24) were designed to investigate the nature of specific local factor(s) within the immediate operating environment of firms, the influence of such factor(s) in the choice of communication technology used in business activities and the extent to

which those local factor(s) affect the impact of communication technology in their business performance. Questions in the last part of the questionnaire – Section E, (Q25 – Q26) asked all respondents what common challenges/problems they often encounter in using communication technology to boost their business performance.

Table 5.3: Attributes of staff who responded to the Questionnaire

Attributes	**Affluent Area**	**Disadvantaged Area**	**Total**
Total number of staff who responded	26	33	59
Total percentage of staff who responded	**44.1%**	**55.9%**	**100%**
Male respondent	17	31	48
	28.8%	52.5%	81.3%
Female respondent	9	2	11
	15.3%	3.4%	18.7%
Respondents' age			
21 – 30	5	1	6
	8.5%	1.7%	10.2%
31 – 40	7	11	18
	11.9%	18.6%	30.5%
41 – 50	11	14	25
	18.6%	23.7%	42.3%
51 and above	3	7	10
	5.1%	11.9%	17%
Respondents' highest educational qualification			
OND	0	4	4
	0%	6.8%	6.8%
HND	2	0	2
	3.4%	0%	3.4%
Degree	10	13	23
	16.9%	22%	38.9%
Msc	14	14	28
	23.7%	23.7%	47.4%
PhD	0	2	2
	0%	3.4%	3.4%

Table 5.3 shows that many of the staff (55.9%) who responded to the questionnaire are from firms operating in the disadvantaged areas of Lagos state. Majority of the respondents in both sampled areas (affluent and disadvantaged), 81.3% are males.

The largest proportion of respondents in the two areas (42.3%) is within the age bracket of 41 – 50 years, followed by those between 31 – 40 years (30.5%). Just 10.2% of all respondents, virtually all of them working or managing small or medium businesses in the affluent areas of Lagos state are in the age category of 21 – 30 years.

The table also shows that largest proportion of all respondents possess either a Bachelor degree (38.9%) or Masters degree (47.4%) as highest educational qualifications, while just two entrepreneurs (3.4%) – both managing their respective businesses in the disadvantaged areas of Lagos state, Nigeria have Doctorate degrees as their highest educational qualifications. It is also shown on the table that none of the respondents is without an educational qualification, the minimum being an Ordinary National Diploma (OND) held by 6.8% of the respondents.

Table 5.4: Cadre of staff who responded to the Questionnaire

Cadre	Affluent Area	Disadvantaged Area	Total
Junior staff	4 6.8%	2 3.4%	6 10.2%
Senior staff	12 20.3%	5 8.5%	17 28.8%
Management staff	6 10.2%	8 13.6%	14 23.8%
Managing partner	2 3.4%	1 1.7%	3 5.1%
MD/CEO	2 3.4%	14 23.7%	16 27.1%
Proprietor	0 0%	3 5.1%	3 5.1%
Sub-total	26 44.1%	33 56%	59 100.1%

Data from table 5.4 shows that largest proportions of the respondents across the two categories (affluent and disadvantaged areas) are key, vastly experienced and influential players in their respective businesses. They vary from senior members of staff (28.8%), Managing Directors/Chief Executive Officers (27.1%) and Management staff (23.8%). This is very important to the study as these cadres of staff are more likely to demonstrate a general understanding of the entire work process in respective firm, and how communication technology (internet, mobile

telephone and/or computer) is used to support and drive business performance. The table also shows largest proportion of the respondents from the firms operating in the disadvantaged areas (23.7%) is made up of Managing Directors/Chief Executive Officers while the largest proportion of the respondents in the affluent areas (20.3%) are senior members of staff.

Table 5.5: Age of the sampled companies

Age	**Affluent Area**	**Disadvantaged Area**	**Total**
Less than 2 Years	1 1.7%	1 1.7%	2 3.4%
2 – 5 Years	1 1.7%	5 8.5%	6 10.2%
6 – 10 Years	9 15.3%	9 15.3%	18 30.5%
11 – 15 Years	4 6.8%	8 13.6%	12 20.3%
16 – 20 Years	7 11.9%	4 6.8%	11 18.6%
21 – Years and above	4 6.8%	6 10.2%	10 16.9%
Sub-Total	26 44.2%	33 55.9%	59 100.1%

On the age category of sampled firms, table 5.5 reveals that, overall, largest proportions of the sampled firms are in the age categories 6 – 10 and 11 – 15 years, 30.5% and 20.3% respectively. They are followed closely by 16 – 20 years old firms (18.6%) and those that have been in operation for at least 21 years (16.9%).

Table 5.6: Number of employees/staff in the sampled companies

Number of employee	**Affluent Area**	**Disadvantaged Area**	**Total**
Less than 10	1 1.7%	20 33.9%	21 35.6%
More than 10 but less than 30	10 16.9%	6 10.2%	16 27.1%
More than 30 but less than 50	7 11.9%	2 3.4%	9 15.3%
50 or more	8 13.6%	5 8.5%	13 22%
Sub-Total	26 44.1%	33 55.9%	59 100%

Data from table 5.6 shows that the number of employees in most of the sampled firms is less than 10 each. 35.6% of the total sampled firms are in this category – virtually all but one from the disadvantaged areas. This is followed by firms with more than 10 but less than 30 employees (27.1%) - majority (16.9%) of which are

from the affluent areas. The table also shows that 22% of all the sampled firms have 50 or more staff each in their employ.

Table 5.7: Most used communication technology medium by the sampled companies

Communication medium	**Affluent Area**	**Disadvantaged Area**	**Total**
Mobile telephone	5 8.5%	17 28.8%	22 37.3%
Personal computer	2 3.4%	3 5.1%	5 8.5%
Internet	15 25.4%	11 18.6%	26 44.1%
Intranet	1 1.7%	0	1 1.7%
Video conferencing	0	0	0
Email	3 5.1%	2 3.4%	5 8.5%
Sub-Total	26 44.1%	33 55.9%	59 100%

Data from table 5.7 shows that largest proportion of all the sampled firms (44.1%) used the internet as the major communication technology medium. This figure is even more significant when added to the 8.5% of firms from both areas that use Email services, an internet-based facility as their major communication technology

medium. However, the table depicts that internet usage as a major communication technology medium is more evident (25.4%) among firms operating in the affluent areas than those in the disadvantaged areas (18.6%).

By contrast, while mobile telephony closely follows the internet as the most used communication technology medium (37.3%) among all the sampled companies, it is much more common among firms operating in the disadvantaged areas (28.8%) as against those in the affluent areas (8.5%).

Table 5.8: Second Most used communication technology medium by the sampled companies

Communication medium	**Affluent Area**	**Disadvantaged Area**	**Total**
Mobile telephone	7 11.9%	8 13.6%	15 25.4%
Personal computer	9 15.3%	15 25.4%	24 40.7%
Internet	3 5.1%	3 5.1%	6 10.2%
Intranet	2 3.4%	0	2 3.4%
Video conferencing	0	0	0
Email	5 8.5%	7 11.9%	12 20.3%
Sub-Total	26 44.1%	33 55.9%	59 100%

Table 5.8 shows personal computer as the second most used communication technology by all the firms (40.7%). The data shows that firms in the disadvantaged areas used it more (25.4%) than those operating in the affluent locations (15.3%). It is also shown in the table that mobile telephony follows personal computer as the second most used communication technology medium (25.5%) by all sampled companies. 20.3% of all sampled firms also identify 'Email services' as their second most used communication medium.

Table 5.9: Third Most used communication technology medium by the sampled companies

Communication medium	**Affluent Area**	**Disadvantaged Area**	**Total**
Mobile telephone	9 15.3%	7 11.9%	16 27.1%
Personal computer	3 5.1%	6 10.2%	9 15.3%
Internet	8 13.6%	15 25.4%	23 39%
Intranet	1 1.7%	0 0%	1 1.7%
Video conferencing	0	0	0
Email	5 8.5%	5 8.5%	10 16.9%
Sub-Total	26 44.1%	33 55.9%	59 100%

Data from table 5.9 reveals that 39% of all the sampled firms (most of them from the disadvantaged areas are of the opinion that internet usage comes third as the most used communication technology medium. It is shown that 25.5% of the sampled companies in the disadvantaged areas place the use of internet in a distant third as the most used communication technology medium. This is against just 5.1% of them in table 2.6 who see its usage as the second choice and 18.6% in table 2.5 who view it as the first choice and most used communication technology medium.

In other words, the use of internet as a communication technology medium is seen as the third most used (which invariably means the least most important/used) by many of the sampled firms in the disadvantaged areas.

Table 5.10: Respondents' views on communication technology media as catalysts for business performance improvement

Respondents' views	**Affluent Area**	**Disadvantaged Area**	**Total**
Yes	26 44.1%	33 55.9%	59 100%
No	0	0	0
Sub-Total	26 44.1%	33 55.9%	59 100%

As shown in table 5.10 above, all respondents in both the affluent and disadvantaged areas (100%) believe use of communication technology media improve business

performance. This belief is supported by empirical evidences from (Adewoye et. al., 2012; Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Akomea-Bonsu, 2012; Barrantes cacares et. al., 2012; Chew et. al., 2011; Esselar Steve et. al, 2007; Evans and Wurster, 1997; Golding et. al., 2008; Gomez, 2012; Hazbo et. al., 2008; Isaac, 2012; Jagun et. al., 2008; Lee Martin and Abbott, 2011; Locke, 2004; Muller-Falke, 2001; Pavic et. al., 2007; Rim, 2009). Findings from their studies corroborate positive causal relationships between Information Communication Technology (ICT) and small/medium businesses in terms of boosting productive efficiency, profitability and growth.

Table 5.11: The extent of improvement in business performance as a result of use of communication technology media

Extent of improvement	**Affluent Area**	**Disadvantaged Area**	**Total**
Very Great Extent	22 37.3%	18 30.5%	40 67.8%
Great Extent	4 6.8%	12 20.3%	16 27.1%
Moderate Extent	0 0	3 5.1%	3 5.1%
Some Extent	0	0	0
Little Extent	0	0	0
Zero/No Extent	0	0	0
Sub-Total	26 44.1%	33 55.9%	59 100%

Data from table 5.11 shows that most of the respondents (67.8%) in both affluent and disadvantaged areas are of the opinion that the use of communication technology media has improved the performance of their businesses/firms to a Very Great Extent, followed by 27.1% who believe the extent of improvement in their businesses has been Great. Very few respondents, just 5.1% of all participants think the extent of improvement in the performance of their firms as a result of using communication technology media is Moderate. It is interesting to note from the available data in the table above that many of the sampled respondents in the affluent areas (37.3%) believe the extent of improvement in their business performance as a result of using communication technology media has been Very Great compared to number of respondents (30.5%) from firms operating in the disadvantaged areas who express similar view.

Table 5.12: Current state of performance of communication technology-driven companies compared to their pre-ICT experience

Company now performing better	**Affluent Area**	**Disadvantaged Area**	**Total**
Yes	8 33.3%	16 66.7%	24 100%
No	0	0	0
Sub-Total	8 33.3%	16 66.7%	24 100%

Data from table 5.12 above only relate to 24 firms (8 from the affluent and 16 from the disadvantaged areas) who had been in operation as business entities in the sampled population before the advent of communication technology media (internet, mobile telephone and personal computer), and are still operating as business concerns till date. All of them (100%) believe use of communication technology media is making their firms perform better now compared to the period when they were not making use of any form of communication technology media to support their business activities. This is buttressed by empirical and theoretical research by (Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Donner, 2004; Gomez, 2012; Horst and Miller, 2006; Jenson, 2007; Pyramid Research, UK, 2010; Samuel Shah and Hadingham, 2007; Thompson and Garbacz, 2007; Waverman, Mesch and Fuss, 2005; Williams and Lydon, 2005).

Evidences from these studies show that Information Communication Technologies (ICTs) are potent tools in boosting productivity and enhancing workplace efficiency in the developing nations. In the same vein, (Papaioannou and Dimelis, 2007) reported in their study that there is an evidence of causality between ICT and organisational performance. In particular, they argued that there is a positive causal relationship between mobile technology and productive efficiency in the developing world. It is believed that people use mobile technology to facilitate business transactions, create business opportunities and also use it as a substitute for travel.

Table 5.13 Extent of improved performance as a result of use of communication technology compared to the pre-ICT period

Extent of improvement compared to the pre-ICT	**Affluent Area**	**Disadvantaged Area**	**Total**
Very Great Extent	6 25%	6 25%	12 50%
Great Extent	2 8.3%	7 29.2%	9 37.5%
Moderate Extent	0 0	3 12.5%	3 12.5%
Some Extent	0	0	0
Little Extent	0	0	0
Zero/No Extent	0	0	0
Sub-Total	8 33.3%	16 66.7%	24 100%

Table 5.13 above also relates only to 24 companies whose existence as business entities predated the advent of communication technology media (internet, mobile telephone and personal computer). It shows that largest proportion of the sampled firms (50%) are of the opinion that the use of communication technology media has improved their business performance to a Very Great Extent compared to the pre-ICT period, followed by 37.5% of the sampled companies who feel the improvement

in their business performance has been to a Great Extent when compared to the level of performance they experienced as business entities prior to using communication technology media.

Table 5.14: Most important business activity supported by the use of communication technology media

Business activity	**Affluent Area**	**Disadvantaged Area**	**Total**
Communication with customers and clients	18 30.5%	26 44.1%	44 74.6%
Communication with members of staff	2 3.4%	0 0	2 3.4%
Customer service	3 5.1%	6 10.2%	9 15.3%
Customer records management	0 0	1 1.7%	1 1.7%
Staff records management	0	0	0
Staff salary/wage processing	0	0	0
Staff and/or customer evaluation and assessment	0	0	0
Staff recruitment management	0	0	0
Company's requisition and facility management	1 1.7%	0 0	1 1.7%
Market research	2 3.4%	0 0	2 3.4%
Sub-Total	26 44.1%	33 55.9%	59 100%

As shown in the table 5.14 above, ‘Communication with Customers and Clients’ is the most important business activity most of the sampled firms (74.6%) use communication technology media to support. The data shows that just very few of all the sampled respondents believe other activities, other than ‘Communication with Customers and Clients’ are the most important business activities supported with communication technology media by their companies. They are as follows: Customer Service Activities (15.3%), Communication with members of staff (3.4%), Market Research (3.4%), Customer Records’ Management (1.7%) and Company’s Requisition and Facility Management (1.7%).

Table 5.15: Second Most important business activity supported by the use of communication technology media

Business activity	Affluent Area	Disadvantaged Area	Total
Communication with customers and clients	6 10.2%	5 8.5%	11 18.6%
Communication with members of staff	6 10.2%	12 20.3%	18 30.5%
Customer service	6 10.2%	6 10.2%	12 20.3%
Customer records management	4 6.8%	8 13.6%	12 20.3%
Staff records management	0	0	0
Staff salary/wage processing	0	0	0
Staff and/or customer evaluation and assessment	0 0	1 1.7%	1 1.7%
Staff recruitment management	0	0	0
Company's requisition and facility management	1 1.7%	0 0	1 1.7%
Market research	3 5.6%	1 1.7%	4 6.8%
Sub-Total	26 44.1%	33 55.9%	59 100%

Table 5.15 above shows that 'Communication with Members of Staff' is the second most important business activity supported with communication technology media by largest proportion of the sampled firms (30.5%). However, a significant number of sampled respondents believe that 'Customer Service' (20.3%) and 'Customer Records Management' (20.3%) are the second most important business activities that their firms use communication technology media to support.

Table 5.16: Key business objective for using communication technology media

Business objective	**Affluent Area**	**Disadvantaged Area**	**Total**
To facilitate communication with customers/clients and staff	14 23.7%	17 28.8%	31 52.5%
To improve customer service delivery activities	4 6.8%	9 15.3%	13 22%
To improve company's profitability and cost savings	4 6.8%	3 5.1%	7 11.9%
To improve quality of company's work	4 6.8%	3 5.1%	7 11.9%
To nourish company's image and earn favourable perception by the customer and staff	0	0	0
To achieve competitive advantage	0 0	1 1.7%	1 1.7%
Sub-Total	26 44.1%	33 55.9%	59 100%

‘Facilitation of Communication with Customers/Clients and Staff’ is said to be the key objective for using communication technology media by the majority of all sampled respondents (52.5%) as shown in table 5.16. This is followed by 22% of all respondents, majority of whom are from the disadvantaged areas (15.3%) who stated that the key objective for using communication technology media is to ‘Improve Customer Service Delivery Activities’

However, some respondents from both the affluent and disadvantaged areas (11.9%) expressed that ‘Improvement in Company’s Profitability and Cost Savings’ is the key objective for using communication technology media, while similar percentage of all sampled respondents (11.9%) stated that ‘Improvement in Quality of Company’s Work’ is the key objective.

Table 5.17: Major influencing factor in local context

Most considered local factor	**Affluent Area**	**Disadvantaged Area**	**Total**
Customers' level of education	6 10.2%	7 11.9%	13 22%
Customers' social status	1 1.7%	0 0	1 1.7%
Customers' purchasing power	6 10.2%	2 3.4%	8 13.6%
Customers' attitude to technology	7 11.9%	4 6.8%	11 18.6%
Traffic situation	0 0	3 5.1%	3 5.1%
Infrastructural support systems	3 5.1%	5 8.5%	8 13.6%
ICT competencies/technical knowledge of customers	1 1.7%	6 10.2%	7 11.9%
ICT technical knowledge of staff	0	0	0
ICT competencies of staff	0 0	4 6.8%	4 6.8%
Type of ICT used by similar companies	1 1.7%	2 3.4%	3 5.1%
Security situation	1 1.7%	0 0	1 1.7%
None	0	0	0
Sub-Total	26 44.1%	33 55.9%	59 100%

Data from table 5.17 shows that ‘Level of Education of Customers’ who live within the immediate operating environment of firms, and are served by such firms is a major factor that companies often consider in deciding which communication technology medium will be most cost-effective, relevant and appropriate to use in the course of their business activities. Largest proportion (22%) of all sampled firms said the ‘Level of Education of Customers’ is a major factor that influences their choice of communication technology medium.

This is followed by 18.6% of all respondents who are of the opinion that ‘Customers’ Attitude to Technology’ within their areas of operation is a factor they consider most, as well as 13.6% of all sampled firms who expressed that they consider ‘Customers’ Purchasing Power’ as a major factor in choosing which communication technology medium to use in their business activities. Some of the sampled firms (13.6%) also view state of ‘Infrastructural Support Systems’ within their local operation areas as a major influencing factor in choice of useful and appropriate communication technology medium.

Table 5.18: Second Major influencing factor in local context

Second most considered local factor	Affluent Area	Disadvantaged Area	Total
Customers' level of education	5 8.5%	5 8.5%	10 16.9%
Customers' social status	1 1.7%	0 0	1 1.7%
Customers' purchasing power	5 8.5%	4 6.8%	9 15.3%
Customers' attitude to technology	3 5.1%	12 20.3%	15 25.4%
Traffic situation	0 0	2 3.4%	2 3.4%
Infrastructural support systems	3 5.1%	2 3.4%	5 8.5%
ICT competencies/technical knowledge of customers	5 8.5%	3 5.1%	8 13.6%
ICT technical knowledge of staff	0	0	0
ICT competencies of staff	2 3.4%	2 3.4%	4 6.8%
Type of ICT used by similar companies	0 0	2 3.4%	2 3.4%
Security situation	2 3.4%	0 0	2 3.4%
None	0 0	1 1.7%	1 1.7%
Sub-Total	26 44.1%	33 55.9%	59 100%

Table 5.18 reveals that 'Customer Attitude to Technology' within areas of operations is the second major factor that is considered in choosing what communication technology medium to use in business activities, according to 25.4% of all the sampled firms. This is followed by 16.9% of all sampled respondents who believe 'Customers' Level of Education' is the second major local factor that influences the choice of what communication technology medium that will best serve the business interests of firms within their operating communities. Some of the sampled firms (15.3%) are also of the opinion that 'Customers' Purchasing Power' of the residents in their local operating areas is the second major factor they think about when considering what communication technology medium to use in supporting their business activities.

Table 5.19: Extent of influence of local factors on ICT-driven business performance

Extent of local factors' influence	**Affluent Area**	**Disadvantaged Area**	**Total**
Very Great Extent	11 18.6%	11 18.6%	22 37.3%
Great Extent	13 22%	14 23.7%	27 45.8%
Moderate Extent	2 3.4%	6 10.2%	8 13.6%
Some Extent	0 0	2 3.4%	2 3.4%
Little Extent	0	0	0
Zero/No Extent	0	0	0
Sub-Total	26 44.1%	33 55.9%	59 100%

Data from table 5.19 shows that largest proportion of all sampled firms (45.8%) believes local factors influence their business performance to a Great Extent. Many of the respondents (37.3%) are also of the opinion that the extent of influence of local factors on their business performance is to a Very Great Extent. In other words, it is believed the extent to which communication technology media could boost their business performance is influenced greatly by factors within the local operating environment of firms.

Table 5.20: Major common problem in using communication technology media to boost business performance

Major problem	**Affluent Area**	**Disadvantaged Area**	**Total**
Shortage of ICT-skilled manpower	0	0	0
Lack of customers' interest in using ICT	1 1.7%	2 3.4%	3 5.1%
Customers' ignorance of ICT capability	2 3.4%	8 13.6%	10 16.9%
High cost of communication technology (ICT)	7 11.9%	9 15.3%	16 27.1%
Infrastructural problems (power failure, network/signal failure)	3 5.1%	12 20.3%	15 25.4%
Uncooperative staff attitude	0	0	0
Cost of technical support	1 1.7%	0 0	1 1.7%
Inadequate functionality	0	0	0
Poor quality of services from ICT providers	9 15.3%	2 3.4%	11 18.6%
None	3 5.1%	0 0	3 5.1%
Sub-Total	26 44.1%	33 55.9%	59 100%

From the data in table 5.20 above, ‘High Cost of Communication Technology’ is shown to be the common major problem militating against using communication technology media to boost business performance, according to largest proportion of the sampled respondents (27.1%). Many of the sampled firms (25.4%), majority of them (20.3%) from the disadvantaged areas however believe ‘Infrastructural Problems - power failure, network/signal failure’ is the major common challenge they face in getting the best from communication technology media to improve their business performance.

Some of the sampled firms (18.6%), most from the affluent areas (15.3%) are of the opinion that ‘Poor Quality of Services from ICT Providers’ is the most major problem they often encounter in using communication technology media to drive business performance. Also, some of the respondents (16.9%), most of them (13.6%) from the disadvantaged areas expressed that ‘Customers’ Ignorance of ICT Capability’ is the major problem they usually face in attempting to use communication technology media to improve their business performance.

Table 5.21: Second Major problem in using communication technology media to boost business performance

Second major problem	Affluent Area	Disadvantaged Area	Total
Shortage of ICT-skilled manpower	0 0	1 1.7%	1 1.7%
Lack of customers' interest in using ICT	0 0	2 3.4%	2 3.4%
Customers' ignorance of ICT capability	3 5.1%	2 3.4%	5 8.5%
High cost of communication technology (ICT)	0 0	5 8.5%	5 8.5%
Infrastructural problems (power failure, network/signal failure)	12 20.3%	11 18.6%	23 40%
Uncooperative staff attitude	0	0	0
Cost of technical support	1 1.7%	2 3.4%	3 5.1%
Inadequate functionality	0	0	0
Poor quality of services from ICT providers	7 11.9%	10 16.9%	17 28.8%
None	3 5.1%	0 0	3 5.1%
Sub-Total	26 44.1%	33 55.9%	59 100%

Data from table 5.21 above shows that largest proportion of all sampled firms (40%) view 'Infrastructure Problems – power failure, network/signal failure' as the second most common challenge they often experience in using communication technology media to boost their business performance. Respondents from both areas (affluent and disadvantaged) are unequivocal in expressing this opinion. This is followed by 28.8% of all sampled respondents who believe 'Poor Quality of Services from ICT Providers' is the second most common problem they usually encounter in using communication technology media to drive their firms' business performance. Other factor(s) viewed as second major problem/challenge militating against using communication technology media to boost business performance by some of the respondents are: 'High Cost of Communication Technology' (8.5% of firms from the disadvantaged areas only); 'Customers' Ignorance of ICT Capability' (8.5% of all sampled firms in both affluent and disadvantaged areas) and 'Cost of Technical Support' (just 5.1% of all sampled firms in both affluent and disadvantaged areas). Two firms (3.4%) from the disadvantaged areas only also believe 'Lack of Customers' Interest in Using ICT' is the second major challenge they often experience in attempting to use communication technology media to support and boost their firms' business performance.

5.3 Chapter Summary

The aim of this chapter was just to provide an indication of respondents' views and opinions on the research questions. The survey findings were meant to complement more comprehensive, context-based qualitative interview findings with a view to deepening empirical understanding of the impact of ICT on business performance of

small and medium firms. The major survey findings suggest that largest proportion of all the sampled firms (44.1%) used the internet as the major communication technology medium. However, its usage is more evident (25.4%) among firms operating in the affluent areas than those operating in the disadvantaged areas (18.6%).

On the other hand, while mobile telephony closely follows the internet as the most used communication technology medium (37.3%) among all the sample firms, it is much more common among companies operating in the disadvantaged areas (28.8%) as against those in the affluent areas (8.5%). All respondents in both affluent and disadvantaged areas (100%) believe use of communication technology media improve business performance. This is also corroborated by published works from (Adewoye et. al., 2012; Akomea-Bonsu, 2012; Barrantes cacares et. al., 2012; Chew et. al., 2011; Esselar Steve et. al., 2007; Evans and Wurster, 1997; Golding et. al., 2008; Hazbo et. al., 2008; Isaac, 2012; Jagun et. al., 2008; Lee Martin and Abbott, 2011; Locke, 2004; Muller-Falke, 2001; Pavic et. al., 2007; Rim, 2009).

Survey findings also indicate that most of the respondents (67.8%) in both the affluent and disadvantaged areas are of the opinion that the use of communication technology media has improved the performance of their business to a Very Great Extent. Survey data also suggest that all 24 firms (8 from the affluent and 16 from the disadvantaged areas) whose business operations predated the advent of communication technology media, and are still in business till date believe use of communication technology media is making their firms perform better now

compared to the period when they were not making use of any form of ICT to support their business activities.

Also, evidence suggests that local factors such as: ‘level of education of customers’ who live within the immediate operating environment of firms, and are served by such firms is a major factor that companies often consider in deciding which communication technology medium will be most cost-effective, relevant and appropriate to use in the course of their business activities. Other factors that are also considered by firms in this regard according to the survey findings are: Customers’ purchasing power, customers’ attitude to technology and the state of infrastructural support systems.

In conclusion, findings from the survey also suggest that largest proportion of all sampled firms (45.8%) believe local factors influence their business performance to a great extent.

CHAPTER SIX

Interview Findings

6.0 Introduction

This chapter presents the findings from the semi-structured interview complemented with major survey findings that were reported in the previous chapter. Data were collected from 14 small and medium firms – seven each operating from the affluent and disadvantaged districts of Lagos State, Nigeria. Profile of fourteen interviewees representing all the interviewed firms was first presented. This focuses on variable such as: area of operation, gender, highest educational qualification, job title, time with firm, time in position, nature of business and age of firm. It is followed by the brief background of all the fourteen firms together with summary of each of the interviews with their respective representatives.

The brief background and summaries of all the interviews provide valuable insights into the nature of all the firms and their experience as business entities before and after they adopted ICT (mobile telephony, computer and/ or internet facilities) as performance improvement tools. This chapter also presents the interview data analysis procedures and the key stages of the analytical technique/approach adapted for the interview data set. The findings are synthesised with key survey findings reported in the previous chapter and are interpreted holistically in the light of study's objective and research questions.

6.1 Interview Findings

Findings from the limited survey were complemented with data from semi-structured interview of willing entrepreneurs or representatives of firms/businesses who had previously given their commitments to participate in further questioning/interview during the survey phase. A total of 14 small and medium firms – seven each operating from the affluent and disadvantaged areas of Lagos state was interviewed. The profile of all the interviewees is shown in table 6.1 below:

Table 6.1: Profile of Interviewees

	Area of Operation	Gender	Age	Highest Qualification	Job Title	Time With Firm	Time In Position	Nature of Business	Age of Firm
Interviewee 1	Affluent	Male	53	PG. Diploma	MD/ CEO	15 Years	15 Years	Consulting	15 Years
Interviewee 2	Affluent	Male	33	Msc	MD/ CEO	17 Years	17 Years	Telecoms Support	17 Years
Interviewee 3	Affluent	Male	40	Msc	Admin. Manager	17 Years	10 Years	Educational Institution	32 Years
Interviewee 4	Affluent	Male	43	MBA	Managing Partner	18 Years	18 Years	Consulting	18 Years
Interviewee 5	Affluent	Male	58	HND	Chief Accountant	15 Years	15 Years	Retailing	15 Years
Interviewee 6	Affluent	Male	39	Bsc	HR Manager	15 Years	10 Years	Insurance	20 Years
Interviewee 7	Affluent	Male	49	MBA	General Manager	17 Years	12 Years	Franchise Mothercare	17 Years
Interviewee 8	Disadvantaged	Male	66	MD, General Medicine	Medical Director	33 Years	33 Years	Hospital	33 Years
Interviewee 9	Disadvantaged	Male	39	Bsc	Head, Training	15 Years	15 Years	Insurance	47 Years
Interviewee 10	Disadvantaged	Male	47	PhD	Proprietor/ Manager	25 Years	25 Years	Educational Institution	25 Years
Interviewee 11	Disadvantaged	Male	47	Msc	CEO	18 Years	18 Years	Manufacturing	18 Years
Interviewee 12	Disadvantaged	Male	45	Msc	CEO	17 Years	17 Years	Manufacturing	17 Years
Interviewee 13	Disadvantaged	Male	43	PhD	Proprietor/ Manager	16 Years	16 Years	Educational Institution	16 Years
Interviewee 14	Disadvantaged	Male	41	Msc	General Manager	15 Years	8 Years	Importation of Agro-chemicals, Newsprints	25 Years

6.1.1 Brief Background on the Firms and Interview Summaries

Firm A – Background Summary

'Firm A' is a business strategy consulting outfit (with staff strength of 10 employees at the time of this study) offering professional services to different companies and sectors in the affluent area of Victoria Island, Lagos state. It was established in 1997 as a sole proprietorship, and used to conduct its business operations manually before ICT became prominent in the Nigerian business environment. The CEO/Founder himself initiated ICT deployment in the company to facilitate business operations and never engaged the services of a consultant. However, a service provider was later contracted and put on retainer ship to ensure the company's ICT architecture (especially its Local Area Network) worked optimally. According to the CEO, the service provider was later disengaged because Management felt there was not much value added.

Interview 1: Firm A – The interview was conducted with the Managing Director and Chief Executive Officer/Founder of the company. He described running of the business before ICT as very tedious, tiring, time-consuming and generally inefficient. According to him, everything was done manually with so much administrative cost and error. He narrated that the evolution of ICT in Nigeria revolutionised business operations and administrative process. The company was described to be dependent more on the use of internet/computer facilities than mobile phone for its operational activities and administrative functions. In his assessment of the impact of ICT, the CEO established that computer/internet has facilitated his business operations and driven down administrative cost considerably. Every aspect

of the firm's business, according to him is now automated and positively impacted 'apart from cleaning this floor'. He believed the company couldn't have functioned at its current level of efficiency without ICT. Most of the clients with whom the firm transacts businesses are professionals in their respective fields with high level of sophistication and ICT appreciation. Hence, the firm is said to be guided by this understanding and is able to leverage the best and appropriate facilities ICT could provide to facilitate mutually-rewarding business interactions with clients. However, the CEO noted some occasional factors in the form of slow broadband strength/speed, high cost of internet connectivity to some clients and low quality of reception as challenges/constraints that are encountered in Nigeria in the course of using ICT to facilitate business performance.

Firm B – Background Summary

'Firm B' is a Telecoms and IT support company operating in the affluent area of Victoria Island, Lagos with staff complement of 38 employees as at the time of this study. It started operations as a one-man business in 1995, selling recharge cards to low income, unenlightened customer base (including individuals and retailers) in Ajegunle – a low income suburb of Lagos state. Much of its business relationship and interaction was conducted through physical contacts, with the exception of relating with some retailers through mobile communication when mobile telephony became available in Nigeria. The business metamorphosed into IT and Telecoms service provider in 1998 and was relocated to the Island, servicing highly educated, enlightened and technology savvy corporate organisations that are willing to outsource their Telecoms and IT needs. According to the CEO, the company also

provides IT and Telecoms support to some less educated, low income clients outside its operational location. Also, the CEO disclosed that the company used to depend on another firm in South Africa to oversee and run its server when it first started managing corporate clients as service provider, but now has its own server.

Interview 2: Firm B – The interview was conducted with the Managing Director and Chief Executive Officer/Founder of the company. He narrated that physical contact was the major point of communication and business interaction with customers before ICT. The firm's customers then were described as low income, uneducated individuals/retailers who were always approached on the streets by marketers. Business expansion was said to be restricted; even though the firm was ambitious in terms of expanding its customer base beyond its location, it was restricted because of absence of communication platform such as internet to facilitate the expansion. It was mentioned that the firm changed its business direction/focus from recharge cards dealership to IT and Telecoms service provider in 1998, and is now able to leverage ICT (internet facility in particular) to transact business in a wider capacity, serve/manage clients beyond its borders and exchange expertise locally and internationally. The CEO admitted that even though many of the firm's current customers are corporate clients, they sometimes have to deal with low income, informal clients who are often less educated and unfamiliar with ICT tools such as internet. Hence, the firm takes this into consideration in choosing the most appropriate and cost effective medium of interaction with different clients. However, the CEO noted communication would be much seamless and business performance would improve more significantly if every client has internet facilities such as

functional website, email account, SKYPE and online chat, and could relate with them to facilitate mutual business relationships. The problem of slow broadband strength/speed was mentioned as hindrance to business development in Nigeria.

Firm C – Background Summary

'Firm C' is an educational institution (with staff strength of 85 employees at the time of this study) offering nursery, primary and post-primary education to residents in the affluent area of Victoria Island, Lagos state. It was established in 1980 by a non-governmental, not-for-profit religious organisation to provide educational opportunities for the benefit of its members and other interested residents in Victoria Island, Lagos. The IT department was mandated by the school's governing council to work out the possibility of automating the school's operations for better coordination and improved efficiency in 1998. This was in response to expansion in physical structure of the school to accommodate increase in students' population. Based on the recommendation of the IT team, the school engaged the services of a consulting firm to network all departments and automate its entire operations. The automation exercise led to various computer-based, customised programs used to run its various academic and administrative activities.

Interview 3: Firm C – The interview was conducted with the Administrative Manager who has been with the school for over 17 years. He described running of the school before ICT as very tough, tedious, tiring, time-consuming and grossly inefficient. According to him, the school relied on typewriter for documents preparation, irrespective of the volume, and this could be very exhaustive and time-

consuming. The interviewee also reported that there used to be so much paper documentation in the course of the school's academic and administrative activities. At present, the school was described to be reliant more on the use of internet/computer facilities than mobile phone for its operational activities and administrative functions. In his assessment of the impact of ICT, the Manager noted that there has been major improvement in operational and administrative efficiency. Operational and administrative activities are conducted much quicker, less time-consuming and more accurately. However, the administrative manager acknowledged the incessant complaints by parents concerning unguarded exposure of their wards to morally questionable sites on the internet. He stated that such complaints by parents drive the school towards deploying the right network in terms of performance, content and control oversight. The Administrative Manager noted occasional server breakdown and signal failure as challenges/constraints that are encountered in Nigeria in the course of using ICT to facilitate business performance.

Firm D – Background Summary

'Firm D' is a consulting outfit (with staff strength of 15 employees at the time of this study) specializing in company restructuring and investment management advisory services in the affluent area of Victoria Island, Lagos state. It stated operations in 1994 as a partnership, and used to process every aspect of its business operations manually before deployment of ICT to facilitate its business process and administrative activities. The Management initiated ICT deployment in the company to ease business operations and reduce both administrative and operational cost. It

once engaged the services of a consulting firm for advisory purpose on the right accounting management software that could fast-track its accounting function.

Interview 4: Firm D – The interview was conducted with the Managing Partner – Cofounder of the company. He narrated that business activities used to be grossly manual before ICT and more support staff were engaged to perform basic tasks such as typing, filing, documenting and other administrative duties. As a result, staff overhead and administrative cost were very high. At the deployment of ICT, the company was described to be dependent more on the use of internet/computer facilities than mobile phone for its operational activities and administrative functions. In his assessment of the impact of ICT, the Managing Partner stated that the company has achieved more visibility and credibility as well as enjoyed improved administrative and operational efficiency Turn-around-time and quality of output are also said to have improved significantly. Most of the clients with whom the firm transacts businesses are described to be highly sophisticated, technology-driven and quality-conscious. This realization, according to the Managing Partner always informs the company's drive and quest for best available communication technology medium that could at least meet the expectation of the clients as well as deliver mutual business objectives. However, the Managing Partner noted sometimes business intelligence/data accessed on the internet might not be very reliable; hence the need to always be cautious and selective in using internet generated data for business activities.

Firm E – Background Summary

'Firm E' is a clothing retail outfit trading in corporate, social and casual wares for men in the affluent area of Ikoyi, Lagos state. It has staff strength of 11 employees, and was established in 1997 by a group of like-minded individuals with common interest in fashion and corporate wares. The outfit was run with just landline telephone and fax machine when it commenced operations. The Management later decided in 1999 to overhaul the entire operations with a view to improving operational and administrative efficiency. A consultant was contracted to advise and recommend what was needed as far as ICT deployment, taking into consideration the nature of business and target market. Following the recommendation of the consultant, the Management deployed customised accounting software, network its operations and hosted a business website to facilitate easy contact and reach out to a lot of customers who usually desire to deal online.

Interview 5: Firm E – The interview was conducted with the outfit's Chief Accountant who has been with the firm since inception. He described running of the business before ICT as very manual and time-consuming, especially the sales management. He also said the firm was restricted in its reach, and could only do business with walk-in customers. According to him, there was so much administrative and operational inefficiency. At present, the firm was described as being more dependent on the use of internet/computer facilities than mobile phone for its operational activities and administrative functions. In his assessment of the impact of ICT, the Chief Accountant stated that the outfit's corporate image and its entire business operation have improved. Through the internet, the firm is now able

to reach wider markets and its customer base has increased significantly. The Chief Accountant described its customers as highly educated, widely travelled sophisticated individuals, and expressed that they are guided by that understanding in reaching out to them through appropriate medium that would guarantee continuous patronage.

Firm F – Background Summary

'Firm F' is an insurance company with staff strength of 105 employees as at the time of this study. Its business portfolio covers home, pension management, vehicle and other related insurance activities. It is located in the affluent area of Ikoyi, Lagos state and has a diverse client base, even though most of its customers are within Ikoyi and Victoria Island axis. It started operations as a partnership in 1992, and is now a medium-sized quoted company at the Nigerian Stock Exchange. The company's Management embraced ICT and fully automated its operations mid 1990s to improve administrative and operational efficiency.

Interview 6: Firm F – The interview was conducted with the Human Resources Manager who has been with the company for over 15 years. He narrated the firm's business ordeals before ICT deployment. According to him, virtually every aspect of the business transaction was run manually with lots of paperwork and time wastage. Tracking and retrieving staff and customers' data was very tedious and time-consuming because they were all manually documented and filed away in the filing room. Important documents always went missing. Much of the company's marketing efforts involved physical commuting to woo potential customers. The company used

to rely on postal services to send documents to customers. Generally, there was so much inefficiency in the system. However, a lot was said to have changed for better in terms of operational and administrative aspects of the business since the deployment of ICT. Operational and administrative cost has been significantly reduced as the company now generates less amount of paperwork by working on soft copies using computer and forward completed assignments/transactions to the appropriate staff for necessary actions/follow-up. Consequently, turn-around-time is very short, and the company now spends less on postal services and paper-based transactions. It was also said that the company leverages more on the internet/computer facilities than mobile phone for its operational and administrative functions. The Human Resources Manager also noted that the varying economic status and communication habits of customers as well kind of ICT used by their major competitors influence their decision on what medium of ICT to use and how best to interact with different clients to achieve business targets. Signal failure, power interruption and slow system response are described as common challenges/constraints that clients sometimes complained about in the course of using ICT, especially the internet.

Firm G – Background Summary

'Firm G' is a Mothercare franchise outfit trading in all clothing materials and wares for mothers and babies. Established in 1995 with diversified ownership (private as well as a number of individual shareholders), it has staff strength of 21 employees as at the time of this study, and operates in the affluent area of Victoria Island, Lagos state. The outfit was run with just landline telephone and fax machine when it

commenced operations. Before granted Mothercare franchise, it was operating as a one-stop clothing retailer with four branches spread across the state. The Management mandated the marketing unit in 1998 to coordinate other departments' inputs concerning automation of every aspect of the firm's business activities, and also drive the implementation in order to achieve operational and administrative efficiency.

Interview 7: Firm G – The interview was conducted with the company's General Manager who has been with the firm for over 17 years. According to him, managing the business before ICT was very expensive, time-consuming and tedious. Marketing was basically through word of mouth and referrals. Customers would need to visit any of our branches to view our stock and make purchases. Every aspect of the business was run manually – stock taking, accounting, delivery and so on. He stated that every department has now been networked and automated, and the company leverages more on the internet/computer facilities for its operational activities and administrative functions than any other form of ICT. In his assessment of the impact of ICT, the General Manager stated that there has been an increase in sales and profitability of the company, and the number of potential customers who make enquiries about their products has increased tremendously because the company can now reach a wider market as well as market their wares at reduced cost though their website. Also, it was stated that the company is now able to monitor its stock in other branches without the need for physical presence, leading to improved cost savings compared to the pre-ICT period when they had to visit every branch for manual stock taking. Management of the business was described to have been

especially impacted positively by ICT. The company is able to run uninterruptedly each time the Managing Director is out of the country, because he is always in constant touch with his inputs through the internet facilities. Varying customers' income and educational level are described as two factors they take into consideration in determining which medium and how best to relate with customers from different backgrounds in order to achieve their business targets.

Firm H – Background Summary

'Firm H' is a full medical practice (hospital) operating in the disadvantaged area of Shogunle, Oshodi, in Lagos state. It started operation as a family business in 1979, and now has 35 staff in its employ as at the time of this interview. Many of its patients (customers) are low income, less educated individuals residing within the vicinity of its area of operation. It also has retainer ship with some corporate organisations within and outside its immediate location, offering medical services to their members of staff. The hospital was operating from a rented apartment in 1979, with no computer, internet or mobile phone facilities to support the business as at that time. The company was using exercise books to document its activities, and different staff members were delegated with different manual activities such as: patients' registration, bookings, stock taking, cash management and other administrative duties. The hospital relocated to a much spacious, permanent location in the same area in 1999, and the CEO/Founder felt the need to seize the opportunity afforded by the emerging computer/internet revolution in Nigeria to automate his business record/data management and other administrative activities. He hired a consultant to coordinate and spearhead the automation. At present, every section of

the hospital is networked, making it easy for the Medical Director/Founder to monitor the firm's activities from his office.

Interview 8: Firm H – The interview was conducted with the Medical Director and Founder of the company. He described how there were so many fraud incidents in the company because of difficulties in business coordination and proper monitoring. Narrating his business operational and administrative challenges Before ICT, the Medical Director said it was difficult to keep track of patients' health and payment records. Patients would have to physically visit the hospital with their medical cards for identification, otherwise, the company would not be able to track their medical records. Also, because there was no means of communication, most patients would just flood the hospital for minor health issues that only required them to have some rest. Managing or attending to medical emergencies was said to be very difficult because the only available means of communication was NITEL (unreliable govt-owned landline telephone facility), and very few people could afford it. Access to latest in medical research and other relevant findings/update necessary for medical practice was literally impossible. According to the Medical Director, you could only rely on periodic medical journals by post for such information. Also, the business would literally ground to a halt each time the Medical Director was out of the country, because he was always unable to oversee how it was run, give necessary directives or attend to patients' medical issues. However, significant operational and administrative improvements are said to have been noted since the deployment of ICT. Incidents of fraud have reduced because patients' data/records can now be documented and tracked anytime with 100 percent accuracy. Oftentimes, some

patients' health concerns can now be managed on mobile phone without necessarily asking them to visit the hospital. The Medical Director also explained that he is now able to keep abreast of happenings in his business, attend to some patients' medical issues, manage the hospital and give necessary directives anytime from anywhere in the world. The Director described his hospital's client base as very diverse individuals and corporate bodies from every part of the state, even though the business is operating from a low-income area. According to him, the hospital's assessment of each customer/patient's educational level and communication habit influences which medium of communication it chooses to relate with them. For example, patients who cannot read are said to be contacted by mobile phone or they could also call the hospital by phone, if there is a need. There are options for better educated customers/patients. They could be sent messages through their emails, contacted by mobile phone or both if required. However, mobile calls was said to be more expensive than sending email messages, and could affect business performance to some extent. The problems of power instability and poor services from mobile phone and internet service providers were mentioned as factors militating against getting the best from ICT to drive business performance/development in Nigeria.

Firm I – Background Summary

'Firm I' is an insurance company (with staff strength of 50 employees at the time of this study) specializing in life brokerage, pension fund management and other related insurance businesses. It was established as a partnership business in 1964 and owned by a group of Nigerian and British investors. The company is situated and operating in a low income area of Ikorodu Road, Lagos state. Prior to the

deployment of ICT, most of its business activities were done manually and business communication was through landline telephone, fax or postal services. The Founding Management initiated ICT deployment in the 1990s to facilitate operational efficiency and administrative convenience, and contracted an IT consultancy firm to spearhead the process. The project led to the design of customised intranet-based accounting software/package intended to ease business operations. It was stated by the company that the IT consultant is on retainer ship, and regularly visits the company on request either to do some system upgrade or attend to technical issues.

Interview 9: Firm I – The interview was conducted with Head, Technical and Training who has been with the company for over 15 years. He described running of the business before ICT as tedious, tiring, time-consuming and generally inefficient. According to him, lot of business activities were done manually with so much administrative cost, unnecessary business visit to clients/associates and general operational inefficiency. He stated that ICT deployment has impacted positively on the company's administrative and operational efficiency. In his view, the impact of ICT is specifically evident in administrative cost reduction, improved quality of output, greater accuracy/precision/exactness in computation and improved customer relationship management. Weak infrastructure, varying income and literacy level of customers are described as factors that often influence choice of which communication medium will the most appropriate to relate with each customer group to achieve business targets.

Firm J – Background Summary

'Firm J' is an educational institution (with staff strength of 90 employees at the time of this study) offering nursery, primary, post-primary education as well as vocational training programs to residents in the disadvantaged area of Ikorodu Road, Lagos state. It was established as a profit-making enterprise in 1987 by a group of three friends to provide educational opportunities and vocational trainings for the benefit of residents within the low-income area of Ikorodu and its environs. In 1997, one of the proprietors initiated the need for ICT deployment in the school to facilitate operational efficiency and reduce administrative cost. But just some of the school's activities and administrative functions were networked, as the cost of full automation/network was found unaffordable. Therefore, the school uses mobile telephony for much of its daily administrative and operational coordination, and only uses computer/internet facilities occasionally for teaching and training support.

Interview 10: Firm J – The interview was conducted with the Managing Director of the school who incidentally is one of the Proprietors/Founders. He has been in managing capacity since the inception of the school and holds a Doctoral degree in Chemical Engineering. He narrated how managing the school used to be tedious, exhausting and uncoordinated before ICT, especially mobile telephony. He said:

"in the past before we started using mobile phone to communicate and coordinate the school's activities, a driver taking the kids home after school could have problems on the way and get stuck. The parents would be worried. Some of them would even come to school to find out about their wards, travelling down for long distance

sometimes. We would have to start tracing particular route(s) we thought the driver normally take to find out what the situation was. At the end of everything, everybody would be so tired and exhausted, wasting so much valuable man-hour resources. But now with the use of mobile, you could easily trace everybody's whereabouts and coordinate the school much more efficiently. Also you would have to be sending messages to parents, sometimes calling for meetings upon meetings before any major decisions that could affect their wards educational development could be made. You would send letters to parents, maybe through their children, or by post. Some students would not deliver the letters and the ones sent by post could take days to reach the parents. Therefore managing the school was quite messy and very inefficient administration wise. Also for members of staff that needed to go on errands officially, you find it difficult to communicate with them in case of any emergencies, unlike now" (interview 10: p.2)

According to him, key staff members in the school are now allocated official mobile telephone lines for operational coordination and administrative convenience. The school is said to have experienced significant improvement in its operational efficiency and administrative cost reduction. However, it is believed full deployment of ICT, especially computer/internet facilities in all classes and departments would more significantly boost the school's performance in terms of better teaching/learning outcomes and students' retention. But the school is constrained to attempt full deployment/network, because most of the parents cannot afford to bear additional increase in tuition fees as a result of full automation. Therefore, the Managing Director explained that the low income level of parents limits the extent of

ICT deployment and benefit in the school. He also noted that high cost of ICT (especially internet connectivity) and illiteracy among the parents are some of the common issues they deal with in attempting to get the best from ICT to support their business.

Firm K – Background Summary

'Firm K' is a manufacturing company with staff strength of 32 employees – 12 permanent, 20 temporary as at the time of this study. Its range of products includes cold water starch, liquid detergent, toilet cleanser and air freshener. It was established as a partnership business in 1994 and currently has a four-member board of directors, including the Managing Director and his son. The company is situated and operating in a low income area of Papa Ajao - Mushin, Lagos state. Most of its customers are uneducated, petty market dwellers in the open market. Prior to the deployment of ICT, the company used to incur more operational cost, especially in moving around from place to place, transacting business with its customers. But it was never considered a problem, because there was no alternative. The Managing Director initiated ICT deployment in the 1999 because he believed it would facilitate operational efficiency and reduce administrative cost. Specific tasks that were later automated include accounting system, administrative function and sale/stock management.

Interview 11: Firm K – The interview was conducted with the Managing Director/Chief Executive Officer who has been with the firm since inception. He

described managing the business before ICT as very costly, inefficient and unimaginably frustrating. He said:

"Sometimes I wondered just how we were able to survive in the past without mobile or internet facilities, but we didn't feel there was any problem in our mode operation then. Sometimes we had to visit every retailer in the market to know the quantity of any of our products they would order, chasing them around to collect our money as well. It is just now that we are experiencing major improvement in our mode of operation that we are regretting in retrospect not having mobile communication or internet facilities in the past. But we never felt we were missing anything because there was no alternative. For example we could go on business visit to some customers, either to collect our money or deliver some of our products, only realising when we get there that the person has travelled. We would feel bad then, but not as bad as thinking about such experience now. Because if it were to be now, we would have been contacted either by mobile phone or sms that the person would not be around, and that would save a lot of resources from being wasted. Now we could only reflect on much we have suffered doing our business at that period" (interview 11: p.2)

According to him, although the company uses mobile telephone most than all other forms of ICT for its business activities because most of its customers are not educated, and the impact has been positive on the company's administrative and operational efficiency. But the impact would have been more significant if all customers are learned and educated. He stated:

"most of our customers are petty market dwellers in the open market. Most of them don't have access to the internet. Even some of them that have internet facility on their mobile phone never use it because of their low level of education. So I contact them by phone, while I communicate with supplier and our bankers using the internet……. if all our customers are learned/educated, we would spend less time and money on making calls and rather send bulk sms to them through their email contacts. But majority of them cannot read, so we need to call them on their mobile phones" (interview 11: p.1, 3)

Customers' educational level was said to be a major influence on how the company relates with its targets. Since most of its customers who operate in the open market have mobile phones but not well-learned, staff always communicate and relate with them through the medium. This was said to be quite easy because every member of staff is registered by the company on a group contract mobile phone facility.

However, much of communication and interaction with banks and major suppliers are through the internet facilities because they all have internet connectivity and dedicated personnel in control. The Managing Director noted that occasional network/signal failure and high cost of maintaining computer are some of the challenges they experience in using ICT for business support.

Firm L – Background Summary

'Firm L' is also a manufacturing company with staff strength of 11 employees as at the time of this study. The company is a sole proprietorship, and manufactures

children clothes and sport wares. It was established in 1995, and operates from a three-bedroom apartment in a low income area of Surulere, Lagos state. Its customer base is diverse, from different educational, social and economic backgrounds and spreads beyond its immediate area of operation. Prior to ICT, the company used to incur more operational cost, especially in moving around from place to place, transacting business with its customers and attending to other business exigencies. The owner, who is also the Chief Executive Officer of the company, initiated the deployment of ICT in year 2000 to facilitate operational efficiency and reduce administrative cost. Specific tasks that were later automated include customer service, product design, accounting management, product marketing and other administrative activities.

Interview 12: Firm L – The interview was conducted with the Chief Executive Officer who founded the company and has been managing it since inception. He described managing the business before ICT as very costly, energy-sapping, and grossly inefficient. He stated:

"It was manual and physical operation. Before GSM, our way of communication was to visit our customers anywhere they may be. We would go from place to place to look for prospective customers, sometimes we distribute handbills for this purpose. Sometimes we would distribute calendar as adverts with products displayed to prospective customers with the expectation that they would display the calendar in their homes and remember us whenever they need our products. It was costing us so much money and time, because sometimes we could spend hours stuck in traffic,

while trying to travel from place to place to attend to business issues. It was also affecting our health, because we had to be travelling to attend to some minor issues that could in the present day be sorted with just one minute mobile call. Besides, the number of current and potential customers we could reach and manage was limited, unlike now" (interview 12: p.2)

According to him, the deployment of ICT has positively impacted their business beyond imagination. The company has been able to expand its reach and improve its corporate profile, reduce its administrative and operational cost, improve operational efficiency and strengthen customer relationship.

"Customers who are indebted to us can now make payment online to our account wherever they are. Before, we had to find a way getting to them wherever they may be and claim our money. Mode of payment is now much easier. We can immediately check our account online to confirm their payment without to physically visit our bank. We save lot of time and cost in this process. When you consider some of our customers who are as far as outside Lagos who can now make payment to us online and we can confirm immediately, you could see how it has made life easier for us. They also send us their product request to our company's email, including any logo they want on the materials they want us make for them. Initially we would need to send a driver to them anywhere they are in the country to collect the logo from them, but now the just scan it to our email. So through the internet, our operations is run faster and we are saving a lot of resources which we normally expended in the past before the internet…….. In terms of customer relations, it is

easier for us to reach our customer now and vice versa. It is easier for us to make our products known than before. Our account monitoring/management used to be difficult. Then it was all physical cash collection, because we were always having issues with cheques not being honoured. We were always vulnerable to attack by armed gangs and always nurse a great amount of fear each time we moved from place to place to collect cash from customers. But now it is easier. Once we tell our customers our prices, and forward them by sms our account number or through the internet, they would just make payment. And as they are making payment, we are immediately getting an alert from our bank on our mobile phone as confirmation." (interview12: p. 2,3)

Weak infrastructural base, varying level of education and economic status of customers are described as factors that influence how the company decides appropriate medium of relating with different clients. Extent of the company's performance is also said to be limited because of high cost of networking and automating every aspect of its business. It is believed ICT impact on business performance could be more visible if the cost of computer/internet connectivity is more affordable. The Chief Executive Officer was quoted saying:

"Sometimes we would need to manage just one computer as an outfit. This sometimes affects our performance, as we are limited on what we can achieve. We have estimated the cost of networking and automating every aspect of our business activities, but found the cost so unbearable for us as a small company, because our

customers might be discouraged from patronizing us if we have to spread the cost on our products" (interview12: p.3)

Firm M – Background Summary

'Firm M' is an educational institution (with staff strength of 107 employees at the time of this study) offering primary, post-primary education and training services to residents in the disadvantaged area of Bariga, Lagos state. It was established as a one-man, business with five students but current has branches in other low-income communities of Epe and Surulere, Lagos state. ICT was deployed in the school to enhance operational efficiency and facilitate communication with all stakeholders. But mobile telephony is the major ICT tool the school uses to coordinate its operational and administrative function. The school also uses computer/internet for teaching and learning support, but at a very limited scale. Weak infrastructure support, high level of poverty and illiteracy among most of the target public (parents) limit how far the school can leverage computer/internet facilities to support its activities.

Interview 13: Firm M – The interview was conducted with the proprietor who also manages the daily affairs of the school. He has been in this capacity since the inception of the school and holds a Doctoral degree in Accountancy. He described how the general administration of the school before ICT was beset with operational/cost inefficiency, sloppy communication and low customers' satisfaction. He narrated:

"It seems to be that If you don't have something, you will not know that you are missing it. When we didn't have mobile telephone or GSM, we didn't think we missed it. But when we started to use it, not having it in retrospect left a huge gap. If we had had it then, perhaps our operations would have been a lot much smoother, faster and a lot more efficient. But then, it was more of we were restricted in terms of fast communication. You only communicate when you see. It is now that we can flash back and say well, this is what we were missing. And in terms of swiftness and efficiency of communication, cost efficiency in terms of printing less information out in papers to students to deliver to their parents. You cannot really value some of these things. There is a wide gap between the customer satisfaction that we have now compared to pre-ICT period" (interview 13: p.3)

According to him, the contribution of ICT towards the school's enhanced performance has been very noticeable in the area of complaint reduction, improved customers' satisfaction, improved students' performance, increased students' retention rate and improved communication/interaction with stakeholders. However, it was expressed that the impact would have been more significant, especially in the area of teaching and learning support if majority of customers (parents) can access other form of ICT like the internet facilities and the operating environment is more supportive in terms of infrastructural provision. In his words,

"I think they do make important contribution, but whether they are significant or not is another issue. It is difficult form me to say. The difference/contribution will be significant if majority of the parents have access to ICT and communication

facilities, and then we are able to communicate a lot more. Although majority of them have mobile communication, but we are looking at situations whereby they can do more than that. If in terms of reduction in complaint level, performance improvement, we can say it's been significant. But in terms of aiding teaching and learning, perhaps we need much better environment. That will be possible when we have the infrastructure to support that in our environment: regular electricity, more availability of computer, easier access and so on" (interview 13: p.4)

In other words, ability to access and explore communication technology such as internet and leverage its capacity for mutually-rewarding outcome is limited by poverty, illiteracy and weak infrastructural base. These factors (poverty, illiteracy and weak infrastructural base) are said to also greatly influence choice of business interaction medium:

"To a very great extent, because if my customers don't have the literacy level to use internet, I can't adopt/use internet in communicating/interacting with them, because they wont understand it. Also if my customers don't have disposable income to procure desktop and connect to the internet, and I adopt internet, it is not going to be very useful for us. Also if there is no electricity to support the use of these things, it is not going to work. What is easiest for majority of our people/customer now is mobile communication and other facility you have on it such as 'text messaging'. That's what defines our choice/usage, that's what is supported by the environment where we operate. And that is why mobile telephony is what we deploy in great deal in our operations. When the time comes, and there are infrastructural facilities and so

on to support the use of more advanced ICT, they will be deployed. In other words, their adoption will be determined by our environment" (interview 13: p.4)

Firm N – Background Summary

'Firm N' deals in importation of agro-chemicals, newsprints and other related products and markets them to interested individuals and organizations. The company is located in a disadvantaged, low-income area of Mushin, Lagos state but serves a wider customer base of diverse socio-economic and educational backgrounds across the state. It was established in 1987 as a one-man enterprise, and now has staff strength of 21 employees as at the time of this study. Prior to the deployment of ICT, the company relied on fax machine and landline telephone to make order from overseas and interact with very few of its customers who had access to them. But most of its operational and administrative activities were conducted through manual and physical process, and the company was experiencing so much operational and administrative inefficiency. Its Management initiated ICT deployment in year 2000, to improve the company's operating standard and facilitate business process. Specific business tasks that were considered to be in dire need of improvement include relationship management with stakeholders (customers, suppliers and staff), stock management and marketing.

Interview 14: Firm N – The interview was conducted with the General Manager who joined the company as manager in 1997, and assumed his current position in 2004. He narrated how the company's mode of operation used to be very time-consuming and inefficient before ICT, unlike now that the firm is able to run much

more efficiently and generate improved business volume through ICT tools. He stated:

"We started using mobile and internet not long ago. In the past when customers come, we would write invoices, generate order manually – so much delay in the process. Much time wastage. But it is much easier and faster doing all these on the computer. We already have templates for virtually all administrative documentation on the computer, so it is much faster and easier to generate order, report or manage our customers. We also experience more business volume nowadays because we are able to generate improved business volume from places beyond our area of operation through our website" (interview14: p.2)

Besides, he expressed that ICT adoption has significantly impacted the firm's business performance in terms of improved efficiency, administrative and operational cost reduction and less staff overheads. In his words:

……..We are able to spend less on staff cost nowadays, because I am able to accomplish more tasks alone with the use of computer unlike in the past when you had to engage more hands. We were using landline to call our suppliers abroad and make orders when there was no internet. But we use internet now and it is much faster and quicker……It has reduced the amount of paperwork we use to generate in the course of our duty, and saved some cost in this regard. Unlike in the past you could hours manually writing invoices to customers, but now you just generate them in a jiffy from your computer''

According to him, the company is influenced by level of education in its choice of medium of interaction, and uses mobile telephone most than all other forms of ICT for its client relationship management because most of its customers are not educated, and even the educated among them do not have internet access. However, the situation (illiteracy) does not have much negative impact on the firm's performance as mobile phone communication is believed to be an effective alternative medium.

"Most of our customers don't have internet facilities, so we always interact with them through mobile communication, because it would be useless using internet to reach them when they don't use it themselves. Most of them are not literate, and even those that are literate do not have internet access…….In our own kind of business, when dealing with our customers, the major thing is to deliver the goods to them. In this respect, the fact that they do not have internet access does not affect our performance negatively. We can always call their mobile phone and arrange delivery of their order to their doorstep" (interview14: p.3)

The General Manager noted that occasional signal failure and other related poor services by IT service providers affect their business operation.

Each interview as described above lasted an average of 35 – 45 minutes, and was held at the respective offices of all the interviewees. Through this method (semi-structured interview), the study "seeks an understanding of behaviour, values, beliefs, and so on in terms of the context in which the research is conducted"

(Bryman, 2008, p..394). The interview topic guide (as shown in appendix II) covered similar questions to those in the survey questionnaire but in greater depth. Varying socio-economic contexts of the communities where the firms operate and how such contexts might influence/shape choice of communication technology adopted as well as its impact on business performance are of utmost importance to the study.

Thematic analytical approach was adopted for the analysis of interview data set. Themes according to King and Horrocks (2010) "are recurrent and distinctive features of participants' accounts, characterising particular perceptions and/or experiences, which the researcher sees as relevant to the research question" (p.150). Three overarching themes (ICT Impact on performance, Mediation of Socio-economic contexts on ICT's choice and Mediation of Socio-economic contexts on ICT's impact) emerged, guided by an analytical process articulated by King and Horrocks (2010). Each of the overarching themes was later described and discussed with examples and relevant quotes from the interview data as well as major survey findings, in the context of how it addressed the research question (s). Process that led to the emergence of the four overarching themes is described below.

6.2 Thematic Data Analysis

Stage One: Having transcribed the full interview data of each of the 14 interviewees from the tape recorder, major preoccupation at this stage was to identify data extracts in each of the transcripts that could provide some insights in addressing the study's objective and research questions. The aim was to describe what is of interest in interviewees' experiences, without attempting to interpret their meanings. First, each

of the transcripts was read twice to gain necessary familiarity with the narrative of each of the interviewees. Second, each transcript was read for the third time, with particular attention (by highlighting) paid to data elements/extracts that were likely to aid understanding of the interviewees' accounts with respect to the research topic. Short comments were written about the highlighted data extracts and very close to it, regarding what was of interest in the context of the research topic. Finally, all the brief comments were carefully read, and those thought to be relevant to the analysis were used to define descriptive codes (labelled as a group of words or short phrases). The descriptive codes defined were based on all the brief preliminary comments without making any attempt to interpret or speculate on what might inform the interviewees' accounts. All the descriptive codes were later reviewed and some that seemed to overlap were merged. Table 6.2 (A and B) below shows the list of final descriptive codes.

Table 6.2 (A): List of Final Descriptive Codes

DESCRIPTIVE CODES
Experienced operational/administrative inefficiencies, fraud and knowledge gap
Experienced sloppy communication, customers' dissatisfaction
Restricted business expansion
Use much internet/computer facilities, less mobile phone
Internet/computer indispensable medium of business interaction
Mobile phone medium of interaction with less educated
Use much mobile phone, less computer/internet
Need infrastructural support, more internet accessibility/adoption
Internet complements mobile calls
Enabling business administration, management outside locations
Enabling expansion beyond borders

Table 6.2 (B): List of Final Descriptive Codes
Enabling operational efficiency, administrative convenience
Enabling cost reduction, sale/customers increase
Enabling operational efficiency at work, could be better
Enabling cost reduction, increase profitability
Enabling less administrative cost compared to pre-ICT era
Enabling improved Turn-around-time, service quality and delivery
Enabling improved sales volume, faster administration, less overheads
Enabling value addition beyond expectation
Enabling fraud reduction through documentation tracking accuracy
Clients' income, educational level inform medium of interaction
Clients' economic status, communication habit greatly influence medium of interaction
Clients' sophistication, ICT compliance, business needs influence choice of medium, design
Quest for right communication technology medium driven by clients' sophistication/ quality consciousness
Complaints greatly influence network's type, content
Affordability, familiarity with communication technology tools, education level greatly determine medium of interaction
Customers' educational level, communication habit determine appropriate medium of interaction
Weak infrastructure, low income and literacy level determine medium of interaction
Prevailing weak infrastructure, low literacy and income level make mobile phone only choice for customers' interaction
Local factors greatly limit business benefits derivable via internet facilities
Local factors increase operational cost through manual processing
Spend/cost of mobile calls compared to sending free sms affect business performance
Internet connectivity to more clients would greatly boost performance
Search for best network driven by complaints
Local factors potentially drive performance
Local factor greatly drives performance
Local factor drives performance

Stage two: The major efforts at this stage were directed towards developing interpretative codes – codes that focused on the interpretation of the meanings of the interviewees' accounts and experiences in the context of the research questions. This was done by clustering together descriptive codes that apparently shared similar meaning and defined an interpretative code that captured them as a whole in relation to the research questions, repeating the process with the rest of all descriptive codes. Thereafter, all the interpretative codes were applied to the full interview data set. Table 6.3 below shows parts/extracts of the full interview data set and the interpretative codes that applied to them.

Table 6.3: Interview Extracts and Applicable Interpretative Codes

	Interview Extracts	
Interpretative Codes	**Affluent Area**	**Disadvantaged Area**
Pre-ICT Business Limitations	Interviewee 1: Everything was manual, so tedious. Using calculator and so on for computation. . Even putting a report together then was a nightmare. You have to write, then give it to somebody to type. If there was an error, they would need to retype and so on (Interview 1 Transcript: p..2). Interviewee 2: In the past, our business was geographically restricted. We could only sell/approach customers within our vicinity. When we were running a recharge card business, all the people we serve were in one geographical area. Even though we were ambitious in terms of expanding our customer base beyond that region, we were limited because of absence of communication platform like internet (Interview 2 Transcript: p.3). Interviewee 3: ….in the past you have to type out so many letters detailing any message you intend to send across to the parents, post them to their addresses or sometimes send them through their kids. The letters would take days	Interviewee 8: We were finding difficult to document and keep track of our patients' records, especially when they don't come with their medical cards. We were using exercise books and delegating the hospital administrative activities to people. Different people were in charge of manually documenting every activity such as: patient' registration, bookings, stock taking, cash management and so on. Off course there was so much fraud because coordination and proper monitoring was a problem. Managing or attending to emergencies was difficult then because the only means of communication was the NITEL (GOVT-owned landline telephone facility), and very few people could afford it in their homes. Besides, the services were even so bad that you would just be wasting your time using it during medical emergencies. In the past, once you leave the country, nobody can reach you and you can't monitor how your business is run (Interview 8 Transcript: p.2,3). Interviewee 9: A lot of transactions take so much time to consummate and you had to make a lot unnecessary business visits to clients/business associates. A lot of business activities were done manually. Everything was manual, time consuming and tiring (Interview 9 Transcript: p.3). Interviewee 10: It was very tedious. For example in the past before we started using mobile phone to communicate and coordinate the school's activities, a driver taking the kids home after school could have problems on the way and get stuck. The parents would be worried. Some of them would even come to school to find out about their wards, travelling down for long distance sometimes. We would have to start tracing particular route(s) we thought the

	to be delivered or some kids would just misplace the letters or deliberately destroy them if they suspect the content is about their misdemeanour at school. Also we used to deal with lot paperwork in the course of our activities…… It was just that productivity was very tedious and tiring with the tools that were present. For example we were always using typewriter, and each time there was a mistake you have to retype, perhaps all over again. Our activities used to be very exhaustive and time-consuming process. For instance, to call a parent meeting, you have to manually generate letter to each parent and send it through their respective child. We believed that was the fastest medium by which the letters could be delivered, because it would take more days by post. But some kids would also misplace the letters and it could take days trying to organise a successful meeting with reasonable number of parent in attendance. (Interview 3 Transcript: p.2,3). Interviewee 4: Then everything we do had to be manually processed (Interview 4 Transcript: p.2). Interviewee 5: When we started in 1997, the major means of communication was landline telephone/fax. We use it to reach out to customers that we could reach on landline. But	driver normally take to find out what the situation was. At the end of everything, everybody would be so tired and exhausted, wasting so much valuable man-hour resources. Also you would have to be sending messages to parents, sometimes calling for meetings upon meetings before any major decisions that could affect their wards educational development could be made. You would send letters to parents, maybe through their children, or by post. Some students would not deliver the letters and the ones sent by post could take days to reach the parents. Therefore managing the school was quite messy and very inefficient administration wise. Also for members of staff that needed to go on errands officially, you find it difficult to communicate with them in case of any emergencies, unlike now (Interview 10 Transcript: p.2). Interviewee 11: We were incurring more cost then, especially in moving around to reach our customers for one business issue or the other or to collect certain information regarding business transaction that we might not even get. We used to rely so much in the past on analogue landline facilities, but we could only link up with very few of our customer who had access to it. Sometimes I wondered just how we were able to survive in the past without mobile or internet facilities, but we didn't feel there was any problem in our mode operation then. Sometimes we had to visit every retailer in the market to know the quantity of any of our products they would order, chasing them around to collect our money as well. It is just now that we are experiencing major improvement in our mode of operation that we are regretting in retrospect not having mobile communication or internet facilities in the past. But we never felt we were missing anything because there was no alternative. For example we could go on business visit to some customers, either to collect our money or deliver some of our products, only realising when we get there that the person has travelled. We would feel bad then, but not as bad as thinking about such experience now. Because if it were to be now, we would have been contacted either by mobile phone or sms that the person would not be around, and that would save a lot of resources from being wasted. Now we could only reflect on much we have suffered doing our business at that period

	we were restricted in our reach. Before, we had to write by post to prospective vendors for supply, and before the order is processed the customers might have cancelled the request because of time wastage, sometime running into weeks (Interview 5 Transcript: p.2,3). Interviewee 6: Initially we run our operations manually, with lot of paperwork and time wastage. Marketing involved moving from place to place to woo potential customers. Customer as well as staff records were all manually documented and filed away in our filing room. Even though the filings were done alphabetically, tracking and retrieving staff or customer data was very tedious and time-consuming. We used to have two dedicated staff managing staff records and three staff were put in charge of managing customers' file. Despite this arrangement, a lot of staff and customers documents always went missing (Interview 6 Transcript: p.2). Interviewee 7: Marketing was basically through word of mouth and referrals. Customers had to make a visit to any of our branches to view our stock and make purchases. We were running every aspect of the business manually – from stock taking to accounting, delivery and so on. Everything was manual, time-consuming and tedious (Interview 7 Transcript: p.2).	(Interview 11 Transcript: p.2). Interviewee 12: It was manual and physical operation. Before GSM, our way of communication was to visit our customers anywhere they may be. It was costing us so much money and time, because sometimes we could spend hours stuck in traffic, while trying to travel from place to place to attend to business issues. It was also affecting our health, because we had to be travelling to attend to some minor issues that could in the present day be sorted with just one minute mobile call. Besides, the number of current and potential customers we could reach and manage was limited, unlike now (Interview 12 Transcript: p.2). Interviewee 13: It seems to be that If you don't have something, you will not know that you are missing it. When we didn't have mobile telephone or GSM, we didn't think we missed it. But when we started to use it, not having it in retrospect left a huge gap. If we had had it then, perhaps our operations would have been a lot much smoother, faster and a lot more efficient. But then, it was more of we were restricted in terms of fast communication. You only communicate when you see. It is now that we can flash back and say well, this is what we were missing. And in terms of swiftness and efficiency of communication, cost efficiency in terms of printing less information out in papers to students to deliver to their parents. You cannot really value some of these things. There is a wide gap between the customer satisfaction that we have now compared to pre-ICT period (Interview 13 Transcript: p.3). Interviewee 14: In the past when customers come, we would write invoices, generate order manually – so much delay in the process. Much time wastage (Interview 14 Transcript: p.2).

Business Benefits of ICTs	Interviewee 1: I could interact with my staff, hold meeting through Skype and run the company's business from overseas. Right now am forwarding some templates I did about six years ago to some of my partners in Dubai and India. In the past, it would be impossible. So they have really enhanced our capacity. It has helped go more paperless. It has assisted in the areas of information and knowledge management system (Interview 1 Transcript: pg1). I don't think we can live without ICT now. Its like saying without aeroplane, you should go to Birmingham by foot, it is just not possible. It is unimaginable. We couldn't have functioned at our level now without ICT. The impact has been huge (Interview 1 Transcript: p.2). Interviewee 2: But now we are able to market/sell across the state. We even have vendors all over the world – suppliers and others we transact business with. We are now able to do business in a wider capacity, thanks to internet facility support. We are able to showcase some of our service through our website. There is a multimedia online presentation on our website that showcases what we do to prospective clients all over the country. How could this be possible without the internet? Now we can serve customers outside our area of operation, outside state and even outside the country. Now we can also	Interviewee 8: It has made our work easier. It has also reduced the level of fraud, because you can document patients' data, how much they pay at a particular point in time and keep the records on the system for years. You could track such information anytime with 100 percent accuracy for fraud prevention and auditing accuracy. Without any doubt, it is much easier now, faster and less stressful to conduct our operations, thanks to communication technology. Even when I travel outside the country, am able to monitor how the business is run, attend to some patients' medical issues and give directives to necessary quarters. Where ever I am all over the world, am abreast of what is happening to my business, unlike in the past when you travel for two, three weeks, before you come back, everything will be upside down. I can use my Nigerian mobile phone anywhere in the world, and patients can reach me anytime for medical issues (Interview 8 Transcript: p.2,3). Interviewee 9: Precision and exactness. Reduction in the amount of paper document we generate and save some cost in this regard. Getting precise answers to whatever it is you dealing with such as calculation through the use of excel for some computations that are involved in our work process. Yes. Things are done faster, quicker, more accurately and with quality/improved output. Nowadays you get some current business information and other data from the internet and can plan your business swiftly accordingly even before they get published in the dailies. Besides what has been said before, it has facilitated the storage, capturing and processing of business information and other data about clients that that are diseased. Unlike before, you can easily call up everything about any diseased clients/customer at a click without spending hours ransacking bunch of files and documents (Interview 9 Transcript: p.2,3). Interviewee 10: But now with the use of mobile, you could easily trace everybody's whereabouts and coordinate the school much more efficiently. There is a lot of improvement. It makes operation very easy. Students' learning has also improved somewhat because ICT makes it possible for them to see

	exchange expertise locally and internationally. That is why we now have vendors in places like UK and China, and we could easily support each other (Interview 2 Transcript: p.3). Interview 3: The parents pay their kids' tuition fees online and we acknowledge accordingly. It means they are able to interact with the school in the comfort of their homes/offices with little or no disruption to their normal daily activities/engagements. It also means we as a school are able to administer our tuition collection better and manage our finances much more efficiently. So we now complete most of our activities that involve interdepartmental inputs with less time and resources. Now everything is easier, less time-consuming, faster more accurate. Work processes are much quicker because we exchange documents through our computer with less need for paper documentation. It has assisted the teaching staff in the area of research. Our curriculum is comparable to the best in the world, because we do research and keep abreast of development in educational sector (Interview 3 Transcript: p. 1,2,3). Interviewee 4: But now we can finish our assignment and forward it to the appropriate department for their input, and thereafter forward to the clients online, saving cost, time	graphically what they are thought verbally. It eases staff communication as well communication with parents. It also aids teaching and learning quite significantly. It saves valuable time and reduces administrative costs to some extent. Ease of administration, better communication, improved teaching and learning outcomes, time/cost savings (Interview 10 Transcript: p.2,3). Interviewee 11: There has been major improvement, especially in the area of communication with customers, staff and our suppliers. Now we can easily make calls in the comfort of our office or send an email with little or no cost and get the job done. It has improved the productivity in a great deal, at least in the area of operation cost reduction. It has also improved the quality of customer service and service delivery. Without much delay, one can attend to customers' requests, quarries or complaints nowadays. Unlike in the past when customers would have to wait till you come around before making their complaint or request. Customers can easily call you know to make a request or give you useful urgent information. For example a customer has called us recently when she suspected that some counterfeits/adulterated products are being sold in the market in our company's name. We were able to act immediately to get the culprits arrested. We can reach more customers now with calls or test messages without incurring any cost, because text message on our mobile contract is free. So our operation/administrative cost has been reduced drastically in that area (Interview 11 Transcript: p.2,3). Interviewee 12: internet is being used to facilitate payment by our customers. Customers who are indebted to us can now make payment online to our account wherever they are. Before, we had to find a way getting to them wherever they may be and claim our money. Mode of payment is now much easier. We can immediately check our account online to confirm their payment without to physically visit our bank. We save lot of time and cost in this process. When you consider some of our customers who are as far as outside Lagos who can now make payment to us online and we can confirm immediately, you could see how it has made life easier for us. They also send

	and tidy up our work process. It means they can receive timely feedback from us through the internet, use the information to attend to their own business needs and improve their work process. Unlike in the past when you have to be present in the office to complete any particular assignment, with the use of internet now, some of us conveniently work at home and complete major assignments without coming to the office. It is a matter of working on our laptop or computer at home and forward completed work to the appropriate quarters. Initially before using computer or internet facilities, we used to have more support staff to assist in basic tasks like typing, filing, documenting and other administrative duties. We no longer require many of such staff complement, as we could perform many of such tasks more efficiently using our computer facilities. It has significantly reduced the amount of time we spend completing an assignments. It has also added a lot of efficiency to our work process and enhanced the quality of our output. Our operational cost has reduced significantly. Our assignments are completed much quicker and the quality much better (Interview 4 Transcript: p.2,3). Interviewee 5: There has been an improvement in database management. We now have access to our online business. Also we could generate	us their product request to our company's email, including any logo they want on the materials they want us make for them. Initially we would need to send a driver to them anywhere they are in the country to collect the logo from them, but now the just scan it to our email. So through the internet, our operations is run faster and we are saving a lot of resources which we normally expended in the past before the internet. It has made a positive impact to our business even beyond our imagination. In terms of customer relations, it is easier for us to reach our customer now and vice versa. It is easier for us to make our products known than before. Our account monitoring/management used to be difficult. Then it was all physical cash collection, because we were always having issues with cheques not being honoured. We were always vulnerable to attack by armed gangs and always nurse a great amount of fear each time we moved from place to place to collect cash from customers. But now it is easier. Once we tell our customers our prices, and forward them by sms our account number or through the internet, they would just make payment. And as they are making payment, we are immediately getting an alert from our bank on our mobile phone as confirmation. (Interview 12 Transcript: p. 2,3). Interviewee 13: We are much better at communicating with parents, much better at responding to their needs, and therefore we are much better in terms of customer satisfaction. Also, we've seen increase in the students' performance because we can communicate quickly with the parents, there's opportunity for us to feedback to them in terms of their wards/children's performance. This has reflected in improved students' performance. Retention of students has also increased. That is because of the satisfaction from the parents. So we can say students that join us from primary level stay through their secondary school education. We have also seen a lot of improvement in level of interaction with our stakeholders. For example we can communicate with our bankers more efficiently. We can also get regular updates about our financial positions from our bankers. This enhances our planning strategy and therefore boosts our financial performance (Interview 13 Transcript: p.4).

	different reports from our computer/software within a click. The reports are more accurate, up to date and take less time and the quality is much better. Much time was consumed in managing our sales data manually in the past, but this is now done much faster with computer. We now have an increase in our customer base. We can now reach wider customers through our website advertisement and publicity. We generate faster reports, communicate with much ease to our customers and we are now able to reach out to more vendors (Interview 5 Transcript: p.2,3). Interviewee 6: Staff and customers' records are easily traceable on the computer. Most of our marketing activities are done through our website online and we generate less amount of paperwork in our work process now, because we always work on the soft copies using computer and forward completed activities/transactions to the appropriate staff for necessary actions/follow-up. So our turn-around-time is shorter now and the company spends less on postal services and paper-based transaction. As stated before, we spend less time consummating our transaction, spend less on paper-based transactions and now operate an up to date staff and customers' records management on our computer software. Now, we can easily send a message to our clients about their policies and get immediate replies	Interviewee 14: We already have templates for virtually all administrative documentation on the computer, so it is much faster and easier to generate order, report or manage our customers. We also experience more business volume nowadays because we are able to generate improved business volume from places beyond our area of operation through our website. We are able to spend less on staff cost nowadays, because I am able to accomplish more tasks alone with the use of computer unlike in the past when you had to engage more hands. We were using landline to call our suppliers abroad and make orders when there was no internet. But we use internet now and it is much faster and quicker. t has reduced the amount of paperwork we use to generate in the course of our duty, and saved some cost in this regard. Unlike in the past you could hours manually writing invoices to customers, but now you just generate them in a jiffy from your computer. It has added value beyond what we expect and better than when we were using fax machine and landline to process our business transaction (Interview 14 Transcript: p.2).

	on the basis of which we can make instantaneous business decisions. Clients can now call us on their mobile, we can direct them to website where they can buy their policies and we can immediately scan their documents to them online. Cost reduction, time saving and better staff and customer relationship management. Without seeing one on one, we do business now (Interview 6 Transcript: p.2,3). Interviewee 7: We can see the impact on our sales, and number of potential customers who make enquiries about our products they see online has increased tremendously. We are able to monitor our stock in other branches without the need to make a visit. It is a great improvement in terms of cost savings compared to when we used to visit every branch and do the stock taking manually. It has impacted greatly in terms of service delivery and general operations. At present the MD is not in the country, but we are able to run the business with his input through the internet facilities. Stocking monitoring, information delivery, timing for ordering stock are much better now. It saves a lot of time (Interview 7 Transcript: p.2,3).	
Internet/Computer, Major ICT Medium of	Interviewee 1: We subscribe to internet service, have a website, computer, Smartphone, email. We do have our own	Interviewee 9: We use computer, internet as well as mobile telephone, basically to communicate with our clients. We also use them to link up with other insurance companies, including other clients and businesses we have

Business Interaction	internal email service. They are basically for communication, research (internet). We depend on internet for research. Without, them we would struggle to function (Interview 1 Transcript: pg.1). For instance, my secretary staff, they can't function without their laptop. They can't reach me without it. Everything is automated (Interview 1 Transcript: p.3). Interviewee 2: ICT, particularly internet is a tool of communication and research to us. It is the major medium we use to engage in business interaction with our clients in this area. We can't really do without it now (Interview 2 Transcript: p.2). Interviewee 3: We use customised programmes (softwares) on our computers to coordinate all our operations (Academic, HR, Accounting/Payroll, Administration, and Store Management) as an institution. We have an active website that hosts every piece of information about the school, and every computer is networked with internet connectivity. We use the internet facilities to support our students' educational activities, and monitor what they do on the internet, to ensure it is purely for academic purpose. We give them assignments and administer them online, with the support of their parents. It is easier because most of the parents have computer and internet access at homes and	mutual business dealings with. We also use computer to store our database, update our customers'/clients' records. We are able to reach our clients and other business associates anytime through the internet mail and their mobile phone contacts without the need to travel distances (Interview 9 Transcript: p.1). Interviewee 12: We use the computer, internet and mobile communication. The computer is used for designs and for our internet operations. It is used for every aspect of our administrative function, such as typing letters to our customers, staff and suppliers and so on (Interview 12 Transcript: p.1). Interviewee 14: We use fax machine and normal telephone in the past, to make order from overseas and communicate to our customers. Now we use computer, email and mobile phone for all these. We use computer for invoicing, administering supply and receiving of goods and also for stock management (Interview 14 Transcript: p.1).

	support their kids to complete their assignments. Some parents even give their laptops out to their children on some occasions for school's academic activities. We have customised internet-based facility that sends instant messages to the parents' email contacts, especially as regards their children's tuition fees. Sometimes they call/email us ahead of time requesting for their kids' tuition fees for the next session. So we always send the breakdown of the bills to their email addresses. Now we have a database of every parent's contacts – addresses, emails and mobile phone numbers. So within minute, we can send message across virtually to all of them (Interview 3 Transcript: p. 1,2,3). Interviewee 4: We started using internet facilities to aid our function as financial advisory company in terms of research on best global best practices, management models and so on. Interviewee 5: We use computer to run the accounting system and hold database for all our customers. Internet is used for communicating with our customers, as we have email addresses of our customers. We also use phone to communicate with our customers. To communicate with our suppliers abroad through the internet for procurement of new fashion and product. They also get back	

	to us through the same medium most of the time. The company has a website, official email. We use our website for advertisement also (Interview 5 Transcript: p.1). Interviewee 6: Computer is used for all our daily operations. We use mobile phone to contact to them. With internet, we are able to market most our products and process payment and claims settlement. Some of our customers from this area pay their premium online through our website**.** We also use in-house internet facilities to process staff loan request, leave administration, information dissemination to every members of staff and performance management activities like periodic staff appraisal, grievance management and staff training. Interviewee 7: We have internet facilities, website where we showcase all our wares. People are now able to shop online through our website. We use computer and have a site where we keep our customers data, all their sms numbers, so each time we have new products or materials, we send bulk/mass sms to all of them and even prospective customers whose details we get from marketing agencies. We use internet for ordering as well, because we have a software that links us with our parent company in the UK. We are currently working with a logistic company to be able to	

	work out how we deliver our products directly upon request to customers outside Lagos sate (Interview 7 Transcript: p.1,2).	
Mobile Phone, Major ICT Medium of Business Interaction		Interviewee 8: We communicate through internet with some of our patients and Health Maintenance Organisations. We use mobile phone in particular for communication with our patients anywhere they may be concerning their health concerns. More often than not, we attend to most of their health concerns on mobile phone by listening to them and then tell them what to do without necessarily coming to the hospital. This saves a lot of time unlike in the past before the advent mobile phone when most people would just flood the hospital for minor health issues that require them to just have some rest at home. We use the internet also to update ourselves with current trends in the field of Medicine, new drugs. We use computer for patients' data management and general administrative activities like registration of patients, taking stock of our outgoings (Interview 8 Transcript: p.1). Interviewee 10: We use the computer, internet and mobile phone, for communication and training (computer to be specific). We use sms to communicate to parents about school's activities. We specifically use free calls services on mobile phone that all the staff own officially to communicate and coordinate our activities across all branches. We use the internet for teaching support. We expect to have ICT in all the classes – such as internet-connected interactive board to aid teaching. But the cost is still very exorbitant in Nigeria. But we cannot afford to have it in every class, because we cannot spread the cost and pass it to parents most of whom are very poor. (Interview 10 Transcript: p.1,2). Interviewee 11: We use mobile phone and visa phone. I register all my staff on group contract with visa phone for the mobile phone facility that will use to run the business. We also use the internet to communicate mostly with our

		suppliers, because most of our customers are petty market dwellers in the open market. Most of them don't have access to the internet. Even some of them that have internet facility on their mobile phone never use it because of their low level of education. So I contact them by phone, while I communicate with supplier and our bankers using the internet (Interview 11 Transcript: p.1). Interviewee 13: We rely most on mobile telephone, especially for communication at operational level with staff as well as for strategic communication with our stakeholders such as our bankers with respect to getting update concerning our financial position for planning purposes. We also use mobile communication for regular contact with our customers – parents of our students. Besides we also make use of computer and internet to some extent for our daily operational/teaching activities (Interview 13 Transcript: p.1)
Existing Socio-Economic Determinants of ICT Medium Choice	Interviewee 1: Most of our clients are professionals in their respective line of businesses, with comparable high level of sophistication and appreciation of ICT-driven tasks/work process. So we are guided by this understanding and always relate with them at that level with respect to business communication and relationship management. I have had business meeting with a client in Dubai through SKYPE and the outcome was very productive and mutually-rewarding. (Interview 1 Transcript: p.3). Interviewee 2: Affordability and Level of education of our target audience (Interview 2 Transcript: p.3). Interviewee 3: The complaints from parents	Interviewee 8: Because we have patients that we serve from every part of the state even though we operate in a low income area, it is a matter of which medium of communication will be appropriate depending on the educational level and communication habit of the patient. Most of our patients who cannot read are contacted by mobile phone calls, if there is a need for that and they could also call us directly. We have options for our few rich and better educated patients. We could send message to their emails contacts or phone, and also follow up with mobile calls if required (Interview 8 Transcript: p.3). Interviewee 9: Power or instability in electricity supply. This limits your choice of how to reach clients or other business associates. You cannot access internet without power or obtaining vital data from the computer. The alternative is generating plant, and this increases the cost of doing business. Also, most of the customers/pensioners we deal with here are low income, aged and illiterates who don't or find thing like internet too sophisticated or who are not computer compliant. We consider this in our interaction with them with respect to how or which medium we use to reach them. For example we have an online product that requires customers to append their signature, but

	inform our ICT policy as a school. As a matter of practice, we are always upgrading our ICT network to the latest available that could give us greater content monitoring and more flexible control over what the kids could access (Interview 3 Transcript: p.3). Interviewee 4: Quality consciousness and sophistication of our clients. Most of our clients in this area have internet facilities at their homes and offices. They hate excuses, want prompt services and are quality conscious. We have to ensure different functionalities on our communication technology facilities (such as website) are always active and are the best available to meet their needs. Sometimes we have to move beyond what they can easily get in terms of service delivery and use the internet facilities most of the time to achieve this (Interview 4 Transcript: p.3). Interviewee 5: Sophistication of customers (Interview 5 Transcript: p.3). Interviewee 6: We always set out to benchmark our major competitors where we operate. The kind of communication technology they use in their operation sometimes informs our decision. Also, we consider the best way to achieve customer satisfaction and boost their patronage by	most customers in this category would prefer you print out the hard copy and send to them to sign. Even when we do launch internet-based product or must reach out to clients through the internet, we ensure we make it as basic as possible, knowing most of the customers we deal with are not internet savvy (Interview 9 Transcript: p.3). Interviewee 10: The issue of cost and affordability. Much of what we spend or will need to spend on ICT deployment in schools will have to be passed to the parents. So you have to consider if they will be able to afford it, considering their economic situation. So this has been mitigating the extent of ICT deployment we have in the school, and indirectly limiting the quality of exposure and ICT-aided instruction that the students could have (Interview 10 Transcript: p.3). Interviewee 11: We consider level of education, because most of our customers operate in the open market and are not well- learned. And we always call on our mobile phone if we want to communicate with them, because virtually all of them have access to mobile phone. But we are communicating or interacting with our banks or our major suppliers we use the internet facilities because they all have internet connection and dedicated personnel who attend to us through this medium (Interview 11 Transcript: p.3). Interviewee 12: We have issues with infrastructure here. Power supply is very erratic. These determine what we use. Sometimes, we would want to send information/product design through the internet and there would not be electricity to power the system. So we would be forced to use our mobile phone, even though the message would be delivered better through the internet. Then poverty issues, the cost of internet connectivity for all our staff is still very prohibitive. Sometimes we would need to manage just one computer as an outfit. This sometimes affects our performance, as we are limited on what we can achieve. We have estimated the cost of networking and automating every aspect of our business activities, but found the cost so

	considering means of communication they are used to. We relate with most of our high income customers and corporate clients through a combination of email communication and mobile contact, while majority of our individual customers that are served by our branches operating in low income community are mostly contacted through their mobile contact. We do consider the situations of our customers in different communities and their ICT use behaviour in our choice (Interview 6 Transcript: p.3). Interviewee 7: With highly educated, high income residents/customers here on the island, who are better exposed to online interaction, we relate with them online, even though we also communicate/interact with them concerning their particular request through mobile phone contact. However, mobile contact is the most effective to reach/relate with our current/potential customers in other part of the state. It is the most affordable and accessible medium to them, and we always exploit this, especially when we need to send bulk message to all of them at once. So we are flexible in our choice of medium, depending on customer target (Interview 7 Transcript: p.3)	unbearable for us as a small company, because our customers might be discouraged from patronizing us if we have to spread the cost on our products. Also level of education of our customers is given consideration. We have a diverse customer base from different educational and social background with respect to ICT habit. So we interact with each group through the appropriate medium (Interview 12 Transcript: p.3). Interviewee 13: It is more about literacy level. Being in that type of environment, not many people are very educated or well read. Second, the level of poverty – the income level is very low, so ability to explore communication facility or technology is limited. The other thing is weak infrastructural support such as electricity as well as the lifestyle of people around here. It is more of a noisy, loud lifestyle, so it is possible for you to have music being to the highest volume possible around you. These affect the adoption of ICT because you always feel how can I use ICT effectively in this type of environment? ……. because if my customers don't have the literacy level to use internet, I can't adopt/use internet in communicating/interacting with them, because they won't understand it. Also if my customers don't have disposable income to procure desktop and connect to the internet, and I adopt internet, it is not going to be very useful for us. Also if there is no electricity to support the use of these things, it is not going to work. What is easiest for majority of our people/customer now is mobile communication and other facility you have on it such as 'text messaging'. That's what defines our choice/usage, that's what is supported by the environment where we operate. And that is why mobile telephony is what we deploy in great deal in our operations (Interview 13 Transcript: p.4). Interviewee 14: Most of our customers don't have internet facilities, so we always interact with them through mobile communication, because it would be useless using internet to reach them when don't use it themselves. Most of them are not literate, and even those that are literate do not have internet access (Interview 14 Transcript: p.3).

Local Factors Hindrance to Improved Performance	Interviewee 2: some of them still find internet connectivity too expensive, even though that is changing now. You would also expect a scenario where all your clients have a functional website, functional customer care team, dedicated email facilities, SKPE, etc. Communication would be seamless and impact more in facilitating mutual business performance. We experience a semblance of this from our relationship with most corporate our clients in Victoria Island or Ikoyi, but when we have to transact business or manage business relationship with informal clients like local transport unions and other similar associations who do not have most of these communication facilities, our service delivery is often negatively impacted and compromised…… Because what it means is that if am able to reach out or manage 10 clients effectively or better now through internet facilities like Skype, online chat and so on, it means the number would increase if more clients are also connected (Interview 2 Transcript: p. 3, 4)	Interviewee 8: Yes, because sometimes the cost of mobile call could be very expensive compared to sending text message. You would need to spend more time on phone, trying to describe a particular prescription to a patient who cannot read. You could spend less time and money sending an sms message about the prescription, because some mobile phone contracts in Nigeria come with free sms (Interview 8 Transcript: p.3). Interviewee 9: An ideal situation would be for every customer/client to be able to access and interact online. This could save us some cost in managing some products that could be dealt with online rather than resorting to occasional time-consuming manual processing (Interview 9 Transcript: p.3). Interviewee 10: Yes. Because we could only go as far as what the parents could afford in terms of ICT deployment in the school. And apart from affecting students' learning outcomes in some respect, it even makes us less competitive as a school among our peers. You even desire parents to have computer at home that the children could use for their homework and so on. But the parents cannot afford it (Interview 10 Transcript: p.3). Interviewee 11: Yes. Because if all our customers are learned/educated, we would spend less time and money on making calls and rather send bulk sms to them through their email contacts. But majority of them cannot read, so we need to call them on their mobile phones (Interview 11 Transcript: p.3). Interviewee 12: Definitely. Because we know the huge impact internet facility usage is having on our business, if the cost is affordable to all and sundry, the

		impact could only be more visible (Interview 12 Transcript: p.3). Interviewee 13: Our desire to explore every possible ICT's capacity to boost our business performance is limited by our customers' literacy level, poverty level as well as other environmental factors. We are responsive to customers. If our customers are not able to use them, we are not going to push them to using them, otherwise it may have backlash. For example, if it were an environment where our customers could use internet effectively, it would be proper for us to aid learning and teaching with internet facilities. And that of course could improve retention rate, improve performance of our students and might also improve our financial positions as an organisation (Interview 13 Transcript: p.5). Interviewee 14: Not much. In our own kind of business, when dealing with our customers, the major thing is to deliver the goods to them. In this respect, the fact that they do not have internet access does not affect our performance much negatively. We can always call their mobile phone and arrange delivery of their order to their doorstep (Interview 14 Transcript: p.3).
Local Factors Catalysts to Improved Performance	Interviewee 1: Because our customers' level of ICT-compliance and sophistication is top-notch, we are able to leverage the best facilities ICT could provide to facilitate our mutual business interactions. Results have been seamless, mutually-rewarding business outcomes (Interview 1 Transcript: p.3). Interviewee 3: Because such complaint by the parents adds impetus to the research efforts of our IT team who always have to constantly	

	look out for and advise on the best upgrade that would offer much tighter access/content control without compromising the potential of ICT in facilitating our administrative efficiency (Interview 3 Transcript: p. 3). Interviewee 4: For business reasons, we are compelled to deploy the best ICT available and right combination that has the capacity to surpass our clients' expectations. As a result, we enjoy great customers' satisfaction in terms of quality and promptness of service delivery and suffer less customer attrition. It is a win-win situation. Because we are driven to use/deploy the best, we are positioned to leverage the capacity of our ICT to delight our clients and achieve our business objectives (Interview 4 Transcript: p.3). Interviewee 5: the level of sophistication of customers we serve informs our ICT deployment, which on the other hand helps us to meet their standard and taste, and then survive as a business entity. For example if don't have an internet or website that is constantly functioning and accessible, our performance will be affected because we deal with customers who always have access to the internet and might want to check a particular product anytime or make an online order to be delivered to them at a particular time	

	(Interview 5 Transcript: p.3). Interviewee 6: Because understanding our customers' different social and economic situations and nature of ICT each category of them is likely to be accustomed to help us interact with them with the most suitable communication medium that could improve our business relationship with them (Interview 6 Transcript: p.3). Interviewee 7: Because it allows us to be flexible in our choice of ICT, hence we are able to achieve our marketing target. We are able to reach/deal with every segment of our customer base through the most cost-effective medium available to them. The rich are not complaining and the poor are not sidelined either (Interview 7 Transcript: p.3).	

The table presented above represents an important aspect of thematic analytical technique – the version articulated and enunciated by King and Horrocks (2010), and adopted for this investigation. It is the second stage (an essential element) of a three-stage analytical process, and is deliberately presented here in order to maintain the flow of description of the entire analytical technique and its process as a whole. The table captures every relevant data extracts from all of the 14 interviewees (7 interviewees each representing the affluent and disadvantaged business districts of the sample population), against their corresponding and applicable interpretative codes.

Stage three: This was the final stage of the analysis where the three overarching themes (ICT Impact on performance, Mediation of Socio-economic contexts on ICT's choice and Mediation of Socio-economic contexts on ICT's impact) that were thought to characterise essential features in the analysis emerged. The overarching themes were derived and defined based on the interpretative codes in table 6.3 above, and addressed the research questions and other major theoretical underpinnings of the study supported by the analysis. Each of the overarching themes was described and discussed below:

ICT Impact on Performance - Data in table 6.3 shows that the firms (from both affluent and disadvantaged areas) interviewed experienced operational and administrative inefficiencies, sloppy communication, customers' dissatisfaction and restricted business expansion in their operations before deployment of Information Communication Technologies. They also endured numerous cases of fraud, resource wastages and inadequacy of requisite information for business operations. According to Interviewee 6:

"Initially we run our operations manually, with lot of paperwork and time wastage. Marketing involved moving from place to place to woo potential customers. Customer as well as staff records were all manually documented and filed away in our filing room. Even though the filings were done alphabetically, tracking and retrieving staff or customer data was very tedious and time-consuming. We used to have two dedicated staff managing staff records and three staff were put in charge of

managing customers' file. Despite this arrangement, a lot of staff and customers documents always went missing" (Interview 6 Transcript: p.2).

Interviewee 7 also stated that, "Marketing was basically through word of mouth and referrals. Customers had to make a visit to any of our branches to view our stock and make purchases. We were running every aspect of the business manually – from stock taking to accounting, delivery and so on. Everything was manual, time-consuming and tedious'' (Interview 7 Transcript: p.2).

Similar examples of pre-ICT business ordeal were narrated by Interviewee 8:

"We were finding difficult to document and keep track of our patients' records, especially when they don't come with their medical cards. We were using exercise books and delegating the hospital administrative activities to people. Different people were in charge of manually documenting every activity such as: patient' registration, bookings, stock taking, cash management and so on. Off course there was so much fraud because coordination and proper monitoring was a problem. Managing or attending to emergencies was difficult then because the only means of communication was the NITEL (GOVT-owned landline telephone facility), and very few people could afford it in their homes. Besides, the services were even so bad that you would just be wasting your time using it during medical emergencies. In the past, once you leave the country, nobody can reach you and you can't monitor how your business is run" (Interview 8 Transcript: p.2,3).

According to Interviewee 9 also: “A lot of transactions take so much time to consummate and you had to make a lot unnecessary business visits to clients/business associates. A lot of business activities were done manually. Everything was manual, time consuming and tiring” (Interview 9 Transcript: p.3).

However, adoption/deployment of Information Communication Technologies (mobile telephony, computer/and or internet facilities) in their businesses heralded an improvement and positive turn-around in terms of operational cost reduction, sale/customer increase, business expansion, increase profitability, improved service quality/delivery, fraud reduction and general operational and administrative efficiency. Some of the interviewees from both affluent and disadvantaged areas narrated their experience after adopting and deploying Information Communication Technologies thus:

Interviewee 1: “I could interact with my staff, hold meeting through Skype and run the company’s business from overseas. Right now am forwarding some templates I did about six years ago to some of my partners in Dubai and India. In the past, it would be impossible. So they have really enhanced our capacity. It has helped go more paperless. It has assisted in the areas of information and knowledge management system (Interview 1 Transcript: pg1). I don’t think we can live without ICT now. Its like saying without aeroplane, you should go to Birmingham by foot, it is just not possible. It is unimaginable. We couldn’t have functioned at our level now without ICT. The impact has been huge” (Interview 1 Transcript: p.2).

Interviewee 2: “But now we are able to market/sell across the state. We even have vendors all over the world – suppliers and others we transact business with. We are now able to do business in a wider capacity, thanks to internet facility support. We are able to showcase some of our service through our website. There is a multimedia online presentation on our website that showcases what we do to prospective clients all over the country. How could this be possible without the internet? Now we can serve customers outside our area of operation, outside state and even outside the country. Now we can also exchange expertise locally and internationally. That is why we now have vendors in places like UK and China, and we could easily support each other” (Interview 2 Transcript: p.3).

Interviewee 8: “It has made our work easier. It has also reduced the level of fraud, because you can document patients’ data, how much they pay at a particular point in time and keep the records on the system for years. You could track such information anytime with 100 percent accuracy for fraud prevention and auditing accuracy. Without any doubt, it is much easier now, faster and less stressful to conduct our operations, thanks to communication technology. Even when I travel outside the country, am able to monitor how the business is run, attend to some patients’ medical issues and give directives to necessary quarters. Where ever I am all over the world, am abreast of what is happening to my business, unlike in the past when you travel for two, three weeks, before you come back, everything will be upside down. I can use my Nigerian mobile phone anywhere in the world, and patients can reach me anytime for medical issues” (Interview 8 Transcript: p.2,3).

Interviewee 9: “Precision and exactness. Reduction in the amount of paper document we generate and save some cost in this regard. Getting precise answers to whatever it is you dealing with such as calculation through the use of excel for some computations that are involved in our work process. Yes. Things are done faster, quicker, more accurately and with quality/improved output. Nowadays you get some current business information and other data from the internet and can plan your business swiftly accordingly even before they get published in the dailies. Besides what has been said before, it has facilitated the storage, capturing and processing of business information and other data about clients that that are diseased. Unlike before, you can easily call up everything about any diseased clients/customer at a click without spending hours ransacking bunch of files and documents” (Interview 9 Transcript: p.2,3).

This is corroborated by the survey data in table 5.12 which only relate to 24 firms (8 from the affluent and 16 from the disadvantaged areas) who had been in operation as business entities in the sampled population before the advent of communication technology media (internet, mobile telephone and personal computer), and are still operating as business concerns till date. The survey finding revealed that all respondents (100%) believe use of communication technology media is making their firms perform better now compared to the period when they were not making use of any form of communication technology media to support their business activities. This is also buttressed by the survey finding in table 5.10 which shows all sampled respondents (100%) in both the affluent and disadvantaged areas expressing belief that the use of communication technology media improves their business

performance. The belief in the positive impact of Information Communication Technologies on performance of small and medium enterprises is also supported by empirical evidences from (Adewoye et. al., 2012; Akomea-Bonsu, 2012; Barrantes cacares et. al., 2012; Chew et. al., 2011; Esselar Steve et. al, 2007; Evans and Wurster, 1997; Golding et. al., 2008; Hazbo et. al., 2008; Isaac, 2012; Jagun et. al., 2008; Lee Martin and Abbott, 2011; Locke, 2004; Muller-Falke, 2001; Pavic et. al., 2007; Rim, 2009). Findings from their studies corroborate positive causal relationships between Information Communication Technology (ICT) and small/medium businesses in terms of boosting productive efficiency, profitability and growth.

Empirical and theoretical research by (Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Donner, 2004; Garbacz, 2007; Gomez, 2012; Horst and Miller, 2006; Jenson, 2007; Pyramid Research, UK, 2010; Samuel Shah and Hadingham, 2007; Thompson and Waverman, Mesch and Fuss, 2005; Williams and Lydon, 2005) also buttress this argument. Evidences from these studies show that Information Communication Technologies (ICTs) are potent tools in boosting productivity and enhancing workplace efficiency in the developing nations.

In the same vein, (Papaioannou and Dimelis, 2007) reported in their study that there is an evidence of causality between ICT and organisational performance. In particular, they argued that there is a positive causal relationship between mobile technology and productive efficiency in the developing world. It is believed that

people use mobile technology to facilitate business transactions, create business opportunities and also use it as a substitute for travel.

Mediation of Socio-Economic Contexts on ICT's Choice – Data from table 6.3 also shows that firms from different socio-economic settings exhibit tendencies for using more of a particular form of Information Communication Technology than others in their business engagements. Many of the businesses operating in disadvantaged areas and having much of their customer base and other stakeholders within that vicinity tend to gravitate more towards mobile telephony than computer/internet facilities. This is evident in the following examples:

Interviewee 13:"We rely most on mobile telephone, especially for communication at operational level with staff as well as for strategic communication with our stakeholders such as our bankers with respect to getting update concerning our financial position for planning purposes. We also use mobile communication for regular contact with our customers – parents of our students. Besides we also make use of computer and internet to some extent for our daily operational/teaching activities" (Interview 13 Transcript: p.1).

Interviewee 11: "We use mobile phone and visa phone. I register all my staff on group contract with visa phone for the mobile phone facility that will use to run the business. We also use the internet to communicate mostly with our suppliers, because most of our customers are petty market dwellers in the open market. Most of them don't have access to the internet. Even some of them that have internet facility

on their mobile phone never use it because of their low level of education. So I contact them by phone, while I communicate with supplier and our bankers using the internet" (Interview 11 Transcript: p.1).

Interviewee 10:"We use the computer, internet and mobile phone, for communication and training (computer to be specific). We use sms to communicate to parents about school's activities. We specifically use free calls services on mobile phone that all the staff own officially to communicate and coordinate our activities across all branches. We use the internet for teaching support. We expect to have ICT in all the classes – such as internet-connected interactive board to aid teaching. But the cost is still very exorbitant in Nigeria. But we cannot afford to have it in every class, because we cannot spread the cost and pass it to parents most of whom are very poor" (Interview 10 Transcript: p.1,2).

In comparison, all the interviewed firms dealing with more clientele from the affluent areas and operating from such locations use more computer/internet tools than mobile telephone for their business operations. The following interview extracts from table 6.3 explicitly state:

Interviewee 1: "We subscribe to internet service, have a website, computer, Smartphone, email. We do have our own internal email service. They are basically for communication, research (internet). We depend on internet for research. Without, them we would struggle to function (Interview 1 Transcript: p.1). For instance, my

secretary staff, they can't function without their laptop. They can't reach me without it. Everything is automated" (Interview 1 Transcript: p.3).

Interviewee 2: "ICT, particularly internet is a tool of communication and research to us. It is the major medium we use to engage in business interaction with our clients in this area. We can't really do without it now" (Interview 2 Transcript: p.2).

Interviewee 3: "We use customised programmes (softwares) on our computers to coordinate all our operations (Academic, HR, Accounting/Payroll, Administration, and Store Management) as an institution. We have an active website that hosts every piece of information about the school, and every computer is networked with internet connectivity. We use the internet facilities to support our students' educational activities, and monitor what they do on the internet, to ensure it is purely for academic purpose. We give them assignments and administer them online, with the support of their parents. It is easier because most of the parents have computer and internet access at homes and support their kids to complete their assignments. Some parents even give their laptops out to their children on some occasions for school's academic activities. We have customised internet-based facility that sends instant messages to the parents' email contacts, especially as regards their children's tuition fees. Sometimes they call/email us ahead of time requesting for their kids' tuition fees for the next session. So we always send the breakdown of the bills to their email addresses. Now we have a database of every parent's contacts – addresses, emails and mobile phone numbers. So within minute, we can send message across virtually to all of them" (Interview 3 Transcript: p. 1,2,3).

The evidences above for both the affluent and disadvantaged areas are supported by the survey finding in table 5.7 which depicts that internet usage as a major communication technology medium is more evident (25.4%) among firms operating in the affluent areas than those in the disadvantaged areas (18.6%) while mobile telephony is much more common among firms operating in the disadvantaged areas (28.8%) as against those in the affluent areas (8.5%) as the most used communication technology medium.

One plausible explanation for this as shown in table 6.3 interview data extracts is that state of infrastructural support and nature of socio-economic peculiarities (level of education, income level, communication habit and level of sophistication) of clients in each operating area largely determine most effective and appropriate communication technology medium for business interactions. This is also corroborated by the survey finding in table 5.17 which shows that 'Level of Education of Customers' who live within the immediate operating environment of firms, and are served by such firms is a major factor that companies often consider in deciding which communication technology medium will be most cost-effective, relevant and appropriate to use in the course of their business activities. The largest proportion (22%) of all sampled firms said the 'Level of Education of Customers' is a major factor that influences their choice of communication technology medium, followed by 18.6% of all respondents who are of the opinion that 'Customers' Attitude to Technology' within their areas of operation is a factor they consider most, as well as 13.6% of all sampled firms who expressed that they consider 'Customers' Purchasing Power' as a major factor in choosing which communication

technology medium to use in their business activities. Some of the sampled firms (13.6%) in the survey also view state of 'Infrastructural Support Systems' within their local operation areas as a major influencing factor in choice of useful and appropriate communication technology medium.

Regarding firms operating in the affluent areas:

Interviewee 1:"Most of our clients are professionals in their respective line of businesses, with comparable high level of sophistication and appreciation of ICT-driven tasks/work process. So we are guided by this understanding and always relate with them at that level with respect to business communication and relationship management. I have had business meeting with a client in Dubai through SKYPE and the outcome was very productive and mutually-rewarding" (Interview 1 Transcript: p.3).

Interviewee 4: "Quality consciousness and sophistication of our clients. Most of our clients in this area have internet facilities at their homes and offices. They hate excuses, want prompt services and are quality conscious. We have to ensure different functionalities on our communication technology facilities (such as website) are always active and are the best available to meet their needs. Sometimes we have to move beyond what they can easily get in terms of service delivery and use the internet facilities most of the time to achieve this" (Interview 4 Transcript: p.3).

Interviewee 6: "Also, we consider the best way to achieve customer satisfaction and boost their patronage by considering means of communication they are used to. We

relate with most of our high income customers and corporate clients through a combination of email communication and mobile contact, while majority of our individual customers that are served by our branches operating in low income community are mostly contacted through their mobile contact. We do consider the situations of our customers in different communities and their ICT use behaviour in our choice" (Interview 6 Transcript: p.3).

Interviewee 7:"With highly educated, high income residents/customers here on the island, who are better exposed to online interaction, we relate with them online, even though we also communicate/interact with them concerning their particular request through mobile phone contact. However, mobile contact is the most effective to reach/relate with our current/potential customers in other part of the state. It is the most affordable and accessible medium to them, and we always exploit this, especially when we need to send bulk message to all of them at once. So we are flexible in our choice of medium, depending on customer target" (Interview 7 Transcript: p.3)

Concerning firms operating in the disadvantaged areas:

Interviewee 13: "It is more about literacy level. Being in that type of environment, not many people are very educated or well read. Second, the level of poverty – the income level is very low, so ability to explore communication facility or technology is limited. The other thing is weak infrastructural support such as electricity as well as the lifestyle of people around here. It is more of a noisy, loud lifestyle, so it is possible for you to have music being to the highest volume possible around you.

These affect the adoption of ICT because you always feel how can I use ICT effectively in this type of environment? ……. because if my customers don't have the literacy level to use internet, I can't adopt/use internet in communicating/interacting with them, because they won't understand it. Also if my customers don't have disposable income to procure desktop and connect to the internet, and I adopt internet, it is not going to be very useful for us. Also if there is no electricity to support the use of these things, it is not going to work. What is easiest for majority of our people/customer now is mobile communication and other facility you have on it such as 'text messaging'. That's what defines our choice/usage, that's what is supported by the environment where we operate. And that is why mobile telephony is what we deploy in great deal in our operations" (Interview 13 Transcript: p.4).

Interviewee 9: "Power or instability in electricity supply. This limits your choice of how to reach clients or other business associates. You cannot access internet without power or obtaining vital data from the computer. The alternative is generating plant, and this increases the cost of doing business. Also, most of the customers/pensioners we deal with here are low income, aged and illiterates who don't or find thing like internet too sophisticated or who are not computer compliant. We consider this in our interaction with them with respect to how or which medium we use to reach them. For example we have an online product that requires customers to append their signature, but most customers in this category would prefer you print out the hard copy and send to them to sign. Even when we do launch internet-based product or must reach out to clients through the internet, we ensure we make it as basic as

possible, knowing most of the customers we deal with are not internet savvy" (Interview 9 Transcript: p.3).

Interviewee 11: "We consider level of education, because most of our customers operate in the open market and are not well- learned. And we always call on our mobile phone if we want to communicate with them, because virtually all of them have access to mobile phone. But we are communicating or interacting with our banks or our major suppliers we use the internet facilities because they all have internet connection and dedicated personnel who attend to us through this medium" (Interview 11 Transcript: p.3).

Interviewee 12: "We have issues with infrastructure here. Power supply is very erratic. These determine what we use. Sometimes, we would want to send information/product design through the internet and there would not be electricity to power the system. So we would be forced to use our mobile phone, even though the message would be delivered better through the internet. Then poverty issues, the cost of internet connectivity for all our staff is still very prohibitive. Sometimes we would need to manage just one computer as an outfit. This sometimes affects our performance, as we are limited on what we can achieve. We have estimated the cost of networking and automating every aspect of our business activities, but found the cost so unbearable for us as a small company, because our customers might be discouraged from patronizing us if we have to spread the cost on our products. Also level of education of our customers is given consideration. We have a diverse customer base from different educational and social background with respect to ICT

habit. So we interact with each group through the appropriate medium" (Interview 12 Transcript: p3).

Interviewee 8: "Because we have patients that we serve from every part of the state even though we operate in a low income area, it is a matter of which medium of communication will be appropriate depending on the educational level and communication habit of the patient. Most of our patients who cannot read are contacted by mobile phone calls, if there is a need for that and they could also call us directly. We have options for our few rich and better educated patients. We could send message to their emails contacts or phone, and also follow up with mobile calls if required" (Interview 8 Transcript: p.3).

In the affluent area where most residents/clients are computer-literate, technologically-driven, highly educated and sophisticated with strong purchasing power, firms tend to adopt more of computer/internet facilities in their business activities and dealings than mobile telephony. However, in the disadvantaged areas that are often characterised by illiteracy, low income and weak infrastructural support, mobile telephony is the major medium often adopted by firms in business interactions with most clients in the areas.

Mediation of Socio-economic contexts on ICT's impact – Interview data extracts in table 6.3 also reveal that state of infrastructural support and nature of socio-economic peculiarities (income level, level of education, clients' level of sophistication and communication habit) of clients/customers served by firms shape

and mediate the impact of Information Communication Technology on business performance. Survey findings in table 5.19 also corroborate this by showing that largest proportion of all sampled firms (45.8%) believe local factors influence their business performance to a Great Extent. In other words, it is believed the extent to which communication technology media could boost their business performance is influenced greatly by factors within the local operating environment of firms.

In the affluent areas where most residents/clients/customers are highly sophisticated, educated and financially buoyant, impact of communication technology on business performance appears to be more prominent and significant. In other words, the socio-economic peculiarities of the area seem to be catalysts to ICT-driven business performance.

According to some of the interviewees:

Interviewee 5: “the level of sophistication of customers we serve informs our ICT deployment, which on the other hand helps us to meet their standard and taste, and then survive as a business entity. For example if don’t have an internet or website that is constantly functioning and accessible, our performance will be affected because we deal with customers who always have access to the internet and might want to check a particular product anytime or make an online order to be delivered to them at a particular time” (Interview 5 Transcript: p.3).

Interviewee 1: “Because our customers’ level of ICT-compliance and sophistication is top-notch, we are able to leverage the best facilities ICT could provide to facilitate

our mutual business interactions. Results have been seamless, mutually-rewarding business outcomes" (Interview 1 Transcript: p.3).

Interviewee 4: "For business reasons, we are compelled to deploy the best ICT available and right combination that has the capacity to surpass our clients' expectations. As a result, we enjoy great customers' satisfaction in terms of quality and promptness of service delivery and suffer less customer attrition. It is a win-win situation. Because we are driven to use/deploy the best, we are positioned to leverage the capacity of our ICT to delight our clients and achieve our business objectives" (Interview 4 Transcript: p.3).

Interviewee 6: "Because understanding our customers' different social and economic situations and nature of ICT each category of them is likely to be accustomed to help us interact with them with the most suitable communication medium that could improve our business relationship with them" (Interview 6 Transcript: p.3).

Interviewee 7: "Because it allows us to be flexible in our choice of ICT, hence we are able to achieve our marketing target. We are able to reach/deal with every segment of our customer base through the most cost-effective medium available to them. The rich are not complaining and the poor are not sidelined either" (Interview 7 Transcript: p.3).

By contrast, the prevailing low income level, high level of illiteracy and weak infrastructural support in the disadvantaged areas are shown to limit the extent of

improvement communication technology could contribute to business performance of firms operating in the areas. This is expressed by some interviewees in table 6.3:

Interviewee 10: “Yes. Because we could only go as far as what the parents could afford in terms of ICT deployment in the school. And apart from affecting students’ learning outcomes in some respect, it even makes us less competitive as a school among our peers. You even desire parents to have computer at home that the children could use for their homework and so on. But the parents cannot afford it” (Interview 10 Transcript: p.3).

Interviewee 11: “Yes. Because if all our customers are learned/educated, we would spend less time and money on making calls and rather send bulk sms to them through their email contacts. But majority of them cannot read, so we need to call them on their mobile phones” (Interview 11 Transcript: p.3).

Interviewee 12: “Definitely. Because we know the huge impact internet facility usage is having on our business, if the cost is affordable to all and sundry, the impact could only be more visible” (Interview 12 Transcript: p.3).

Interviewee 9: “An ideal situation would be for every customer/client to be able to access and interact online. This could save us some cost in managing some products that could be dealt with online rather than resorting to occasional time-consuming manual processing” (Interview 9 Transcript: p.3).

Interviewee 13: “Our desire to explore every possible ICT’s capacity to boost our business performance is limited by our customers’ literacy level, poverty level as well as other environmental factors. We are responsive to customers. If our customers are not able to use them, we are not going to push them to using them, otherwise it may have backlash. For example, if it were an environment where our customers could use internet effectively, it would be proper for us to aid learning and teaching with internet facilities. And that of course could improve retention rate, improve performance of our students and might also improve our financial positions as an organisation” (Interview 13 Transcript: p.5).

Interviewee 8: “Yes, because sometimes the cost of mobile call could be very expensive compared to sending text message. You would need to spend more time on phone, trying to describe a particular prescription to a patient who cannot read. You could spend less time and money sending an sms message about the prescription, because some mobile phone contracts in Nigeria come with free sms” (Interview 8 Transcript: p.3).

6.3 Chapter Summary

This chapter presented a synthesis of major findings from both the semi-structured interview and the limited survey in the previous chapter. Highlights of the findings are captured below:

Findings from both the semi-structured interview and survey suggest that the adoption of ICT (mobile telephony, computer/and or internet facilities) signalled an

improvement in business performance of studied firms in terms of operational cost reduction, sale/customer increase, business expansion, increase profitability, improve service quality/delivery, fraud reduction and general operational and administrative efficiency. It is also revealed that firms from different socio-economic backgrounds exhibit tendencies for using more of a particular form of ICT than others in their business engagements. Many of the businesses operating in the disadvantaged areas and having much of their customer base and other stakeholders within that vicinity tend to use more of mobile telephony than computer/internet facilities, while firms with more clientele in the affluent areas and operating from such locations use more computer/internet tools than mobile telephony for their business operations.

It is reported that state of infrastructural support and nature of socio-economic peculiarities (level of education, income level, communication habits and level of sophistication) of clients in each operating area largely determine most effective and appropriate communication technology medium for business interaction. In addition, findings suggest that the state of infrastructural support and nature of socio-economic peculiarities described above also shape and mediate the impact of ICT on business performance. In the affluent areas where most residents/clients are highly sophisticated, educated and financially-buoyant, impact of ICT on business performance appears to be more prominent and significant. The socio-economic peculiarities of the area seem to be catalysts to ICT-driven business performance. On the other hand, the prevailing low income level, high level of illiteracy and weak infrastructural support in the disadvantaged areas are shown to limit the extent of improvement communication technology could contribute to business performance of firms operating in the area.

CHAPTER SEVEN

Discussion and Conclusions

7.0 Introduction

This chapter considers the major findings that have been presented in the last two chapters of this study, and in terms of how they have addressed the original research questions. These (research questions) were:

1. What impact(s) do ICTs have in enhancing the business performance of SMEs?
2. In what ways does socio-economic context influence the choice of ICTs by SMEs; and what is the impact on business performance?
3. To what extent does socio-economic context mediate, shape/moderate the impact(s) of ICTs on the business performance of SMEs?
4. What are the different SME outcomes that can be identified in varying local socio-economic contexts where there is similar ICT access; and how can these be explained?
5. In what ways do ICTs and social context mutually influence each other?

The chapter also synthesises major arguments, insights and conclusions from key findings and presents their contributions to literature as well as ICT policy design. In particular, the chapter describes how the findings contribute to a refinement and

modification of Social Shaping Theory to make the latter more robust and improve its applicability across a variety of situations.

7.1 Discussion of Findings and Main Conclusions

First, with respect to impact of communication technology on business performance, findings indicate that use of mobile telephony, computer and internet-based communication channels makes a significant contribution to the performance of the small and medium enterprises that were studied. Considering the myriad of administrative/operational limitations and how the sampled firms fared in terms of business performance when they were managing their business affairs without the use of any form of communication technology (mobile telephony, computer, internet), the findings clearly suggest that they perform much better now, and point to a high probability that their current level of performance is due to the use of communication technology. This is depicted by data generated from both the survey and semi-structure interview (as presented in tables 6.3, 5.10 and 5.12).

The adoption of communication technologies (mobile telephony, computer and/or internet facilities) for business transactions and administration by the firms has improved their business fortunes in terms of operational cost reduction, sales/customers' increase, business expansion, increase profitability, improved service quality/delivery, fraud reduction and general operational and administrative efficiency. Empirical and theoretical evidence from previous studies (Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Akomea-Bonsu, 2012; Barrantes cacares et. al., 2012; Chew et. al., 2011; Diga, 2007b; Donner, 2004; Esselar Steve et. al,

2007; Evans and Wurster, 1997; Golding et. al., 2008; Gomez, 2012; J Hazbo et. al., 2008; Horst and Miller, 2006; Isaac et. al., 2012; Jagun et. al., 2008; Jeffrey (cited in Etzo and Collender), 2010; Jenson, 2007; Lee Martin and Abbott, 2011; Lock, 2004; Muller-Falke, 2001; Oluwatayo, 2012; Papaioannou and Dimelis, 2007; Pavic et. al., 2007; Pyramid Research, UK, 2010; Rim, 2009; Samuel Shah and Hadingham, 2007; Thompson and Garbacz, 2007; Wavermann, Mesch and Fuss, 2007; Williams and Lydon, 2005) all corroborate the effectiveness and potency of Information Communication Technologies in facilitating business transactions and creating business opportunities, boosting business productivity, profitability, growth as well as enhancing workplace efficiency in the developing nations.

Second, although a significant number of empirical and theoretical studies as highlighted in chapter two of this thesis indicated that the use of communication technologies engenders improved business performance by firms (Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Donner, 2004; Gomez 2012; Horst and Miller, 2006; Jenson, 2007; Papaioannou and Dimelis, 2007; Pyramid Research UK, 2010; Samuel, Shah and Hadingham, 2007; Thompson and Garbacz, 2007; Waverman, Mesch and Fuss, 2005; Williams and Lydon, 2005), very few of such previous research works considered the role of varying socio-economic contexts in influencing the choice of communication technologies by firms, and shape their impact in business performance. Some of the key findings of this current work fill such gap in the literature.

The findings suggest that small and medium enterprises from different socio-economic communities exhibit tendencies for using more of a particular form of communication technology medium than others in their business engagements. Many of the firms operating in the disadvantaged districts and serving a considerably large customer base and other stakeholders within those districts tend to use more mobile telephony than computer/internet facilities; while those operating and serving more clients in the affluent districts use more computer/internet tools than mobile phone for their business operations. This is shown by data gathered from both the survey and semi-structured interview (as presented in tables 6.3 and 5.7). One plausible explanation for this as shown in table 6.3 interview data extracts, and corroborated by the survey finding in table 5.17 is that state of infrastructure support and nature of socio-economic peculiarities (level of education, income level, communication habits and level of sophistication) of clients/customers in each district or operating area largely determine most effective and appropriate communication technology medium for business interactions.

In the affluent areas where most residents/clients are computer-literate, technologically-driven, highly educated and sophisticated with strong purchasing power, firms tend to use more computer/internet facilities in their business activities and dealings than mobile telephony. In contrast, firms operating in disadvantaged communities that are characterised by low income, illiteracy and weak infrastructure support, more often than not adopt mobile telephony as a major medium of business interactions with most clients in the areas.

In addition, the interview and survey findings (in tables 6.3 and 5.19 respectively) show that state of infrastructural support and nature of socio-economic peculiarities (income level, level of education, level of sophistication and communication habit) of clients/customers served by firms also shape and moderate the impact of communication technology on business performance to a great extent. In the affluent districts where most residents/clients are highly educated, sophisticated and financially buoyant, the impact of communication technology on business performance appears to be more prominent and significant. In other words, the socio-economic context/peculiarities of the area seem to be catalysts to ICT-driven business performance. By contrast, the prevailing low income level, high level of illiteracy and weak infrastructure support in the disadvantaged districts are shown to limit the extent of improvement communication technology could contribute to business performance of firms operating in the areas.

The above empirical evidence from the study strongly supports the idea of a mutually influencing relationship between communication technology and society – communication technology positively impacts the performance of small and medium firms, and existing socio-economic context/factors within the districts where the firms operate also influence the choice of communication technology and subsequently shape its impact on business performance.

More specifically, the findings suggest that class differences with respect to income and education, as well as communication habits and the state of infrastructural support between the affluent and disadvantaged districts, significantly shape the

choice of communication technology adopted by those firms studied in their business interactions and communications with their respective audience/targets. To be specific, computer/internet-based communications media are used more extensively by firms operating in the affluent districts because most residents and clients served in those areas are more educated and fall within the high income bracket, while mobile telephony communication channels are the preferred/much common media employed by firms operating in the disadvantaged districts in their business dealings and other interactions with target publics.

Evidence also suggests that the extent of influence/impact communication technology has on the performance of studied firms varies depending on their areas of operation. Businesses operating in the affluent districts use more computer/internet-based facilities in their operations and therefore show greater degree of influence of communication technologies on their performance than those operating in the disadvantaged communities.

7.2 Contribution to the Literature

This section synthesises major arguments in the above discussion and presents the contribution the study makes to the field of knowledge. Although a significant number of studies as highlighted in chapter two of this thesis indicated that the use of communication technologies engenders improved business performance by firms (i.e. Adewoye et. al., 2012; Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Akomea-Bonsu, 2012; Barrantes cacares et. al., 2012; Chew et. al., 2011; Donner, 2004; Evans and Wurster, 1997; Golding et. al., 2008; Gomez 2012; Hazbo et. al.,

2008; Horst and Miller, 2006; Isaac, 2012; Jagun et. al., 2008; Jenson, 2007; Lee Martin and Abbott, 2011; Muller-Falke, 2001; Papaioannou and Dimelis, 2007; Pavic et. al., 2007; Pyramid Research UK, 2010; Samuel, Shah and Hadingham, 2007; Thompson and Garbacz, 2007; Waverman, Mesch and Fuss, 2005; Williams and Lydon, 2005), very few of such previous research works considered the role of varying socio-economic contexts in influencing the choice of communication technologies by firms, and shape their impact in business performance. Some of the key findings of this current work as discussed in section 7.1 of this thesis fill such gap in the literature.

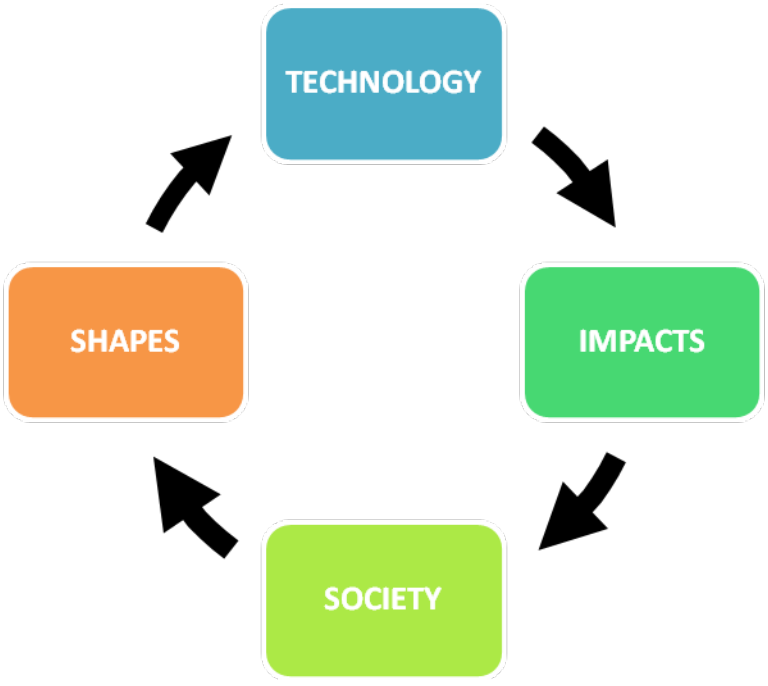
This research also makes a direct contribution to a refinement and modification of Social Shaping Theory, which in its attempt to address the apparent neglect of social factors' influence on technology and the disproportionate attention some social scientists devote to the effect of technology on society – and from the perspective of technological determinism pays little attention to the valid arguments of technological determinism concerning the impacts/influence of technology on social context and relations. In addition, the study also contributes to advancement in the frontier of knowledge by deepening an understanding of the relationship between technology and society. These contributions are expatiated below:

First, the study presents strong evidence (as presented in tables 6.3, 5.10 and 5.12) to support the fact that communication technology significantly contributes to the performance of the small and medium enterprises that were studied. On the other hand, it also depicts (as shown in tables 6.3 and 5.17) that the state of infrastructural

support and the nature of local socio-economic peculiarities (level of education, income level, communication habits and level of 'sophistication') of clients/customers in each district significantly equally influence the choice of communications technology by firms and shape its impact on business performance.

Therefore, a new theoretical model depicting a modification and refinement to the Social Shaping Theoretical framework as shown below emerges from the findings discussed above. The modification makes the theory more robust and applicable to different socio-economic situations/contexts, especially with respect to SMEs business performance.

Figure 1: IBRAHIM'S Modified Social Shaping Theoretical model



The above simple model succinctly captures all the major elements and components of the modified Social Shaping Theory adapted for this study, and corroborated by the findings of this investigation as previously discussed. As an hybrid of both technological determinism and social shaping theoretical frameworks, the right side of the model diagrammatically depicts the main postulate of technological determinism theoretical perspective (technology impacts society) while the left side indicates the central idea of the original social shaping theoretical framework (society shapes technology).

In the context of this study, the key terms in the model are defined as follows:

- **Technology**: This means communication technologies (i.e mobile telephony, internet and/or computer.
- **Society**: This connotes small and medium businesses.
- **Prevailing Factors in Society**: This basically means the level of education and income status of the residents where SMEs operate. It also depicts the state of infrastructure of the immediate local environment where the firms conduct their businesses.
- **Impacts**: 'Impacts' in the model suggests 'causes, triggers or enhances improved business performance.
- **Shapes**: It means 'determines technological choice and influences its impact in business performance.

As a whole, the model simply encapsulates a concept of 'Symbiotic Interactionism' between technology and society - a much clearer, mutually-influencing inter-activity

between technology and society. In other words, as technology impacts society and institutions within it (technological determinism theoretical perspective), prevailing factors in the society also influence technology (social shaping theoretical perspective).

It depicts a two-way, mutually influencing relationship between technology and society – technology (i.e. communication technologies – mobile telephony, internet and/or computer) impacts (that is: 'enhances business performance' or 'triggers improved business performance') society (i.e. small and medium businesses), and the 'prevailing factors' in the society (i.e. 'level of education', 'income level', 'state of infrastructure') also influence or determine technological choice, and shape its impact in business performance or change process.

Therefore, this modified social shaping theoretical model offers a broader, complete, more robust and balanced perspective towards understanding and analysing the more symbiotic, mutually influencing relationship between technology and society.

Specifically, the modified Social Shaping framework as a new model for understanding the relationship between technology and society, in the context of examining the impact of communication technologies on the performance of SMEs operating in different socio-economic settings – the affluent and disadvantaged districts is invaluable to researchers and policymakers in the following ways:

1. As an explanatory model to aid understanding and articulate the relationship between technology and society in socio-economic change process, particularly in the context of examining the impact of communication technologies on the performance of SMEs operating in different socio-economic settings – the affluent and disadvantaged districts.

2. As an analytical tool to inform empirical investigations that might specifically focus on examining the impact of communication technologies on the performance of SMEs operating in different socio-economic contexts.

Moreover, this research presents the "Modified Social Shaping Theory" as a new theoretical framework for understanding ICTs and socio-economic change process, in the context of how communication technologies contribute to the performance of SMEs operating in different socio-economic settings. The modified Social Shaping framework developed to guide this investigation is significantly different from the original social shaping perspective as articulated by Donald Mackenzie and Judy Wajcman (1999). The original social shaping theory emphasises that social factors influence technological outcomes. In other words, technology is shaped by social factors, and is also subject to the influence of socio-cultural, ecological, political and economic imperatives in the society. Technology is viewed not to determine human actions, but human actions determine and shape technology. It further states that technology could be fundamentally altered by societal factors. In other words, social context fundamentally affects and shapes technology.

On the other hand, the new theoretical framework (modified Social Shaping Theory) refines the original social shaping perspective by articulating (through empirical findings) that while it is undeniable that social factors influence technological outcomes (social shaping), technology also impacts social context and its institutions (technological determinism). Thus, the focus of the modified Social Shaping Theory, as stated in chapter three of this thesis is the articulation of a mutually-influencing relationship between technology and society, as implied by the 'Symbiotic Interactionism' concept, which connotes a much clearer hybrid of the main ideas of technological determinism and social shaping theoretical perspectives.

Also, this research evidence particularly buttresses the argument advanced in chapter three of this thesis that social shaping also applies to adaptation and selection of the existing technologies (i.e. communication technologies) by different communities according to their specific prevailing socio-economic and infrastructural circumstances. It extends beyond the design and production of technologies, to exploring how social outcomes are achieved in the selection and adoption of technology (Williams and Edge, 1996).

Besides, as highlighted in chapter three of this thesis, Donald Mackenzie and Judy Wajcman's Social Shaping theoretical perspective downplays the reciprocal influence of technology on social context with its emphasis on the influence of social context and relations on technology. In addition, other major theoretical perspectives described in chapter three such as: Chandler's (1995) Technological Determinism (a linear, one-directional approach, and with stronger emphasis on technological

factors); Callon and Latour's (1992) Actor Network Theory (no clear distinction between human and material agency, making it empirically difficult to examine interactivity and understand the interplay between them); and Orlikowski's (1992) Structuration Theory (failure to account for the reciprocal effect technology exacts on social factors by attributing agency – ability to "make a difference" (Gidden's 1984) or exacting an effect to humans alone) also fail to provide a complete explanation and understanding of the relationship between technology and society.

Thus, findings (as presented in tables 6.3, 5.10, 5.12, 5.17 and 5.19) of this study provide a more balanced account of the relationship between technology and society, suggesting a refinement and modification of social shaping theoretical perspective to accommodate a new concept of 'Symbiotic Interactionism' – relationship between technology and society is mutually influencing. It is believed the incorporation of 'Symbiotic Interactionism' (which connotes a much clearer hybrid of the main ideas of technological determinism and social shaping) into the description of social shaping perspective would make the theory more robust and improve its applicability across a variety of situations. This is because the thrust of Social Shaping theory emphasises stronger influence of social context and relations on technology, thereby overlooking the valid argument of technological determinism to the effect that technology has impact/influence upon social context and relations.

However, key findings of this research as discussed in chapter seven of this thesis suggest a reciprocity of relationship between technology and society. Technology and society are not separate, independent entities, but have mutually-influencing

relationships. In other words, the research argues for mutually-influencing inter-activity in explaining the relationship between technology and society – as technology impacts society and institutions within it (technological determinism), prevailing factors in the social context also influence technology (social shaping).

Also, this thesis presents a new perspective (Modified Social Shaping Theory) that would guide future research concerning the impact of ICTs in socio-economic change, especially in the context of examining the impact of communication technologies on the performance of SMEs operating in different socio-economic settings – the affluent and disadvantaged districts. As highlighted in chapter two of this project, a significant number of earlier studies approached their investigations from a technological deterministic perspective. Their analyses of the impact of ICTs in socio-economic process focussed on technological factors as determinants of change. Some of such studies include: Adewoye et. al., 2012; Aker, Coller and Vincente, 2011; Aker and Mbiti, 2010; Akomea-Bonsu, 2012; Bailard, 2009; Barrantes cacares et. al., 2012; Chew et. al., 2011; Christopher, 2008; Cronin et. al., 1993; David et. al., 2005; Diga, 2007b; Evans and Wurster, 1997; Golding et. al., 2008; Gomez, 2012; Hazbo et. al., 2008; Isaac, 2012; Jagun et. al., 2008; Jeffrey (cited in Etzo and Collender), 2010; Jenson, 2007; Lee Martin and Abbott, 2011; Lydon and Williams, 2005; Muller-Falke, 2001; Okpaku, 2006; Pavic et. al., 2007; Pilat and Wolfl, 2004; Pyramid Research UK, 2010; Roller and Wavermann, 2001; Samuel et. al., 2007; Thompson and Garbacz, 2007; Wavermann, et. al., 2005; and Williams, 2007.

Virtually all of the works above fail to also examine the peculiarities of social contexts in which technology is embedded, and how its impact might be shaped and moderated by such factors. In other words, no previous studies (especially from the developing countries' context) has employed a modified Social Shaping framework for understanding ICTs impact in socio-economic change, particularly in regards to examining the impact of communication technologies on the performance of SMEs operating in different socio-economic settings. Instead, existing perspectives (such as technological determinism) that inform most ICTs impact studies are premised on the old paradigm assumption concerning socio-economic change – that development would be triggered across board, if technological architecture is copied and implemented wholesale.

Key findings in this research suggest a new, balanced perspective (modified Social Shaping Theory), and enrich theoretical discourse by acknowledging both social and technological factors in the debate. In other words, it suggests that the views expressed by some authors (Ashby et. al., 1980; Djamen et. al., 1995; Lerner, 1958; Lomas, 1995; Pye, 1963, p.3;) that technological provision would generally impact or contribute to socio-economic advancement in developing society need to reflect varying contexts of infrastructure and socio-economic peculiarities of different communities, and how those might account for variation in socio-economic change.

Besides, the empirical findings of this investigation corroborate the validity of the modified Social Shaping Theory. The research conducted in this study examined the impact of ICTs (mobile telephony, internet and computer) on the performance of

Small and Medium businesses in Lagos state, Nigeria. The study focussed on SMEs operating in different socio-economic districts of Lagos state – the affluent and disadvantaged districts. The application of modified Social Shaping framework to inform the empirical investigation and guide the subsequent data analysis offers deeper insights into the relationship between technology and society.

The findings, as articulated in chapter seven of this thesis lend support to the idea of a more symbiotic relationship between technology and society. It is argued that as communication technologies positively impact the performance of small and medium firms studied, existing socio-economic contexts/factors within the districts where the firms operate also influence the choice of communications technology, and significantly shape its impact on business performance.

In general, this research contributes to the growing literature on communication technologies and their impacts on socio-economic development. By examining some of the existing approaches and major theoretical perspectives (such as Technological Determinism, Social Shaping Theory, Social Constructivism, Instrumental Theory, Substantive Theory, Social Presence Theory, Actor Network Theory, Structuration Theory) that are grounded on either social constructivism or technological determinism, and often dominate the sociology of communication technologies and development debate, it notes and critiques their apparent inadequacies in providing a balanced, impartial and most accurate articulation in explaining the relationship between technology and society.

In particular, the perspective of technological determinism is widely critiqued not only for being too simplistic and one-sided in describing the relationship between technology and society, but also ascribing deterministic influence to technology, suggesting society and its institutions are always passive recipients of technologies' impact. This perspective (technological determinism) underlies much of the technology and development debate, and has a tendency of restricting intellectual discourse on the subject to a linear, narrow and one-dimensional argument.

The modified Social Shaping perspective adopted for this study offers a wider, robust and more balanced account of the relationship between technology and society in development debate. In contrast to a rather simplistic and one-directional view of theoretical perspective such as technological determinism, it suggests a much more balanced view/and explanation of symbiotic interactivity between communication technology and social context/factors.

In other words, it suggests that an explanation and study of technological-induced change without taking cognizance of the similar and reciprocal influence of social factors could only provide a partial, static and one-sided account of the relationship between technology and society. Therefore, the modified Social Shaping perspective proposes that both technological and social imperatives need to be equally considered in examining the relationship between technology and society.

7.3 Contribution to Policy

This dissertation presents findings (as shown in tables 6.3, 5.10 and 5.12) that the adoption of communication technology (mobile telephony, computer and/or internet facilities) for business interactions and administration by all the studied firms has improved their business performance in terms of operational cost reduction, sales/customer increase, business expansion, increase profitability, improved service quality/delivery, fraud reduction and general operational and administrative efficiency.

However, findings in tables 6.3 and 5.19 also suggest different outcomes in business performance of small and medium firms operating in different districts. High level of education, high level of sophistication and strong purchasing power of most clients/customers in the affluent areas are shown to be catalysts to ICT-driven business performance of firms operating in such communities. By contrast, the prevailing weak purchasing power, high rate of illiteracy and weak infrastructural support that characterise disadvantaged districts served by studied firms are shown to limit the extent of improvement communication technology could contribute to business performance of firms in such areas.

It therefore appears that socio-economic factors such as illiteracy, poverty and weak infrastructural support should be issues of great concern to government interested in using ICT to address socio-economic inequalities and engender even development. Other issue of concern to ICT policy designers should be relevance and appropriateness of ICTs services and content to varying and specific targets. The

underlying cliché of the old development paradigm assumption that technology would leapfrog developing countries' socio-economic capabilities into the elite club of advanced knowledge-driven economies needs to give way to a more pragmatic, context and need-driven approach. In view of this, effective ICT for development policy should give serious considerations to the following:

First, ICT policy makers need to move beyond rhetoric and intensify real and concrete efforts at initiatives that would support eradication of mass illiteracy among the disadvantaged/poor communities. Findings suggest that high level of illiteracy among the disadvantaged districts served by the studied firms constitutes hindrance to improvement communication technology could contribute to business performance. The policy initiatives should encompass basic computer/internet training, information processing management and creation of more awareness about the potentials of ICT in improving the quality of life. These messages should be conveyed in local languages best understood by the target audience for ease of assimilation. The emphasis should be on imparting requisite knowledge that would make it easier for the disadvantaged/poor communities to be able to exploit the benefits of ICT to improve their quality of life.

According to Heeks, development agenda is prioritised in the following order "the poor need knowledge to access, assess and apply existing information and need resources for action more than they need access to new information; the poor need access to new, locally-contextualised information more than access to existing information from an alien context; the information needs of the poor may be met by

more informal information systems than by formal ICT-based systems; the poor will reap the fullest benefits of ICTs only when they know and control both the technology and its related know-how" (Heeks, 1999). Therefore, the ICT policy will be more effective in addressing socio-economic imbalance if its implementation strategies focus more on how the disadvantaged/poor could possess adequate knowledge to process and apply information from ICT in a useful and beneficial manner.

Second, policy also needs to address the issues of weak infrastructural support and un-affordability of computer/internet facility by the disadvantaged/poor communities. Findings indicate that weak infrastructural support and prevailing weak purchasing power among the disadvantaged districts are some of the factors that restrain them from gaining access to computer/internet facilities, thereby limiting the extent firms could attempt in using communication technology to boost business performance. Policy makers would need to be more creative in addressing the digital divide occasioned by these factors. Literature is replete with a number of public access ICTs models initiated by some developing nations to provide affordable broadband wireless telecommunication and internet technology to the disadvantaged groups such as internet café and telecenters. Some of these models operate on public-private partnership platform. An example, according to Laura and Elizabeth (2008) is 'EasySeva' – a Sri Lanka-based ICT project conceived to provide affordable broadband wireless telecommunication and internet technology to rural regions of Sri Lanka for the purpose of enhancing the quality of life and improving the economic status of the rural and disadvantaged communities through the usage of

ICT. It is a profit-oriented, multiple partnership project designed as a franchising model to empower rural entrepreneurs through establishing and managing village level kiosks franchises that would provide public telephone and affordable internet access to rural dwellers and disadvantaged communities. Its design and operations are characterised by the following among others:

a. Services provided by the franchises reflect local content and address local needs and wants.
b. Relevant/adequate trainings are provided for the franchise operators.
c. Local communities/dwellers are treated as stakeholders at all stages of the project.
d. Wide consultation with community members was undertaken prior to project statt-up, to determine relevance to meeting local need or desire
e. Most importantly, advanced technology (wireless broadband and VOIP) that could survive peculiar infrastructural challenges and connectivity issues was adopted (Fife, and Hosman, 2007).

Fife and Hosman (2008) also reviewed the operations of 'EasySeva' as a project, and found it to be a success story for disadvantaged communities. Therefore, the EasySeva' model could be considered by ICT policy designers for the disadvantaged districts. However, there must be a political will to see it through, and its design, content and mode of operations would have to be adapted to local context.

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APPENDIX 1

Survey Questionnaire

UNIVERSITY OF BIRMINGHAM

A STUDY OF IMPACT OF ICT ON BUSINESS PERFORMANCE

Dear Participant,

I would appreciate your participation in this research, which attempts to investigate the impact of Information and Communication Technology (ICT) on performance of small and medium companies in Lagos State, Nigeria. The research is being conducted in partial fulfilment of the requirements for a PhD degree at University of Birmingham, United Kingdom.

I, the researcher, assure you that the data collected will be strictly confidential following the Data Protection Act (1998). If you have any concern whatsoever, kindly contact me on: IAR047@bham.ac.uk, or ibrahimrufai@yahoo.com. I would also appreciate if you are available for a short face-to-face interview anytime in June, 2012 in Nigeria.

Name IBRAHIM ADENIYI RUFAI .....

Signature:

.RUFAI.....

Date:.16-04-2012.....

I, the participant, agree to take part in this survey.

Name:

.....

.

Signature:

.....

Contact Number:…….

Email:……

Date:……

Exploring and Determining: Technology nature, expectations, impact and context

This structured questionnaire is part of a Doctoral research instrument which is attempting to explore what impact communication technologies (ICTs) have in facilitating the performance of small and medium companies, and to what extent such impact is influenced by local social factors within the immediate operating environment of firms.

INSTRUCTION: PLEASE TICK AS APPROPRIATE

SECTION A: TYPE OF COMPANY AND RESPONDENTS' BACKGROUND INFORMATION

Q1. Type of your company?

☐IT services and related companies

☐Health management and related companies

☐Manufacturing Company

☐Financial services and related firms

☐Travelling agencies, visa services and related firms

☐Architectural, engineering, building and related companies

☐Hospitality, hotel services and related companies

☐Educational services and related firms

☐General supermarket and related services companies

☐Broadcasting, advertising and media-related companies

☐Property, estate management and related companies

☐Farming and related companies

Kindly describe type of your company if different from the above:……..

Q2. Your gender?

☐ Male

☐ Female

Q3. Your age?

☐20 or under

☐21 – 30

☐31 – 40

☐41 – 50

☐51 and above

Q4. Your highest educational qualification?

☐Primary School Certificate or its equivalent

☐Secondary School Certificate or its equivalent

☐Ordinary National Diploma or its equivalent

☐HND or its equivalent

☐B.Sc Degree or its equivalent

☐Msc Degree or its equivalent

☐No formal educational qualification ☐PhD or its equivalent

Kindly indicate your level of educational qualification(s) if different from the above……

Q5. How long has the company been in existence?

☐Less than 2 years ☐11 – 15 Years

☐2 – 5 Years ☐16 – 20 Years

☐6 – 10 years ☐21 Years and above

Q6. Number of employees in your company?

☐Less than 10

☐10 or More, but less than 30

☐30 or More, but less than 50

☐50 or more

Instruction for question 7: 'Affluent area' is where an overwhelming majority of the residents are perceived to be rich, upper class, high-income earners or business executives, while 'Disadvantaged area' is where an overwhelming majority of the residents are perceived to be lower class, low-income earners or business executives.

Q7. Which of the following best describes where your company is located?

☐ 'Affluent area' of Ikoyi, Victoria Island or Lekki Peninsula

☐ 'Disadvantaged area' of Ajegunle, Mushin, Shomolu-Bariga, Ajeromi-Ifelodun, Amuwo- Odofin, Agege, Oshodi-Isolo, Shogunle, Ifako-Ijaye, Ibeju-Lekki, Badagry, Epe, Alimosho, Kosofe or Ikorodu

Kindly indicate which part of Lagos your company is located, if different from the above……

Q8. How would you describe the ownership structure of your company?

☐ One- Man Business ☐ Partnership

☐ Family Business ☐ Limited Liability Company

☐ Non-Family Business ☐ Unlimited Liability Company

Kindly describe ownership structure of your company, if different from the above…….

Q9. Please answer the questions below about yourself:

Job Position/Title	
Department	
Time with firm	
Time in position	
Telephone Contact Number	
E-mail Contact	

SECTION B: COMMUNICATION TECHNOLOGY AS FACILITATOR OF BUSINESS PERFORMANCE.

Q10. Which communication technology medium does your company use MOST?

☐Mobile Telephone ☐Intranet

☐Personal Computer ☐Video Conferencing

☐Internet ☐E-mail

Q11. Which is the Second Most used communication technology medium by your company?

☐Mobile Telephone ☐Intranet

☐Personal Computer ☐Video Conferencing

☐Internet ☐E-mail

Q12. Which communication technology is the Third Most used medium by your company?

☐Mobile Telephone ☐Intranet

☐Personal Computer ☐Video Conferencing

☐Internet ☐E-mail

Note for question 13: 'Performance' is defined in terms of profitability, quality of output and cost savings

Q13. Do you believe use of communication technology improves your business performance?

☐Yes

☐No

Q14. If you tick ‘Yes’ to the above question, to what extent does the use of communication technology improve your business performance?

☐Very great extent ☐Some extent

☐Great extent ☐Little extent

☐Moderate extent ☐Zero/Little extent

Q15. Was there ever a period in the history of your company when you ‘Did Not’ use any form of communication technology such as mobile telephone, personal computer or internet?

☐Yes

☐No

Instruction: If you tick ‘No’ to the above, please skip the next two questions and proceed to question 18. For question 16, ‘Pre-ICT’ refers to period in the past when your company ‘Did Not’ use any form of communication technology.

Q16. Is the use of communication technology making your company perform better now compared to the Pre-ICT period?

☐Yes

☐No

Q17. To what extent is the use of communication technology making your company perform better now compared to the Pre-ICT period?

☐Very great extent ☐Some extent

☐Great extent ☐Little extent

☐Moderate extent ☐Zero/Little extent

SECTION C: JOB/ACTIVITY AND COMPANY'S OBJECTIVE(S) FOR USING COMMUNICATION TECHNOLOGY

Q18. What is the MOST important activity that your company uses communication technology to support?

☐Communication with customers/clients ☐Staff salary/wage processing

☐Communication with members of staff ☐Staff and/or customer evaluation and assessment

☐Customer service ☐Staff recruitment management

☐Customer records management ☐Company's requisition, and facility management

☐Staff records management ☐Market research

Q19. The Second Most important activity that your company uses communication technology to support is?

☐Communication with customers/clients ☐Staff salary/wage processing

☐Communication with members of staff ☐Staff and/or customer evaluation and assessment

☐Customer service ☐Staff recruitment management

☐Customer records management ☐Company's requisition, and facility management

☐Staff records management ☐Market research

Kindly indicate any other job/activity that is currently supported by communication technology in your company, if different from the above…….

Q20. Kindly specify which among the following, is the Key objective for using communication technology in your company.

☐To facilitate communication with customers/clients and staff

☐To improve customer service delivery activities

☐To improve company's profitability and cost savings

☐To improve quality of company's work

☐To nourish company's image and earn favourable perception by the customers and staff

☐To achieve competitive advantage

Kindly indicate any other objective for using communication technology in your company, if different from the above……

Q21. Please indicate the extent to which the ICT objective(s) above are achieved.

☐Very great extent ☐Some extent

☐Great extent ☐Little extent

☐Moderate extent ☐Zero/Little extent

SECTION D: EXTENT OF INFLUENCE BY FACTORS IN LOCAL ENVIRONMENT

'Factors in your local context or environment' refer to situations that are peculiar to the immediate environment/locality where your company is located and its business is conducted. It could mean the characteristics of its customers/clients, local residents and staff such as: Level of ICT literacy/awareness, Level of education, Attitude to ICT, purchasing power/economic status (of customers and local residents only) or other factors such as: state of physical infrastructural support, security situation, traffic situation and so on.

Q22. Which ONE among the following factors in your local environment do you consider or think MOST about, when deciding what form of communication technology to use in your business activities?

☐Customers' level of education ☐Infrastructural support systems

☐Customers' social status ☐ICT competencies/technical knowledge of customers

☐Customers' purchasing power ☐ICT technical knowledge of staff

☐Customers' attitude to technology ☐ICT competencies of staff

☐Traffic situation ☐Type of ICT used by similar companies in your locality

☐Security situation ☐None

Q23. Which Second factor in your local environment do you consider or think about when deciding what communication technology to use in your business?

☐Customers' level of education ☐Infrastructural support systems

☐Customers' social status ☐ICT competencies/technical knowledge of customers

☐Customers' purchasing power ☐ICT technical knowledge of staff

☐Customers' attitude to technology ☐ICT competencies of staff

☐Traffic situation ☐Type of ICT used by similar companies in your locality

☐Security situation ☐None

Kindly indicate any other factor(s) that you consider or think about, when deciding what form of communication technology to use in your business activities, if different from the above……...

Q24. To what extent do you believe the factors you indicated in questions 22 - 23 above affect the impact of communication technology in your business performance?

☐Very great extent ☐Some extent

☐Great extent ☐Little extent

☐Moderate extent ☐Zero/Little extent

SECTION E: COMMON CHALLENGES/PROBLEMS IN USING COMMUNICATION TECHNNOLOGY TO BOOST BUSINESS PERFORMANCE

Q25. What major problem do you mostly encounter in using communication technology to improve business performance?

☐Lack of customers' interest in using ICT ☐Cost of technical support

☐Customers' ignorance of ICT's capability ☐Un-cooperative staff attitude

☐High cost of communication technology ☐Shortage of ICT-skilled manpower

☐Infrastructural problems (power failure, etc) ☐ Inadequate functionality

☐Poor quality of services from ICT's providers ☐None

Q26. The Second major problem in using communication technology to improve your business performance is?

☐Lack of customers' interest in using ICT ☐Cost of technical support

☐Customers' ignorance of ICT's capability ☐Un-cooperative staff attitude

☐High cost of communication technology ☐Shortage of ICT-skilled manpower

☐Infrastructural problems (power failure, etc) ☐ Inadequate functionality

☐Poor quality of services from ICT's providers ☐None

Please indicate any other problem (s) often encountered by your company in using communication technology to boost business performance, if different from the above……..

Q27. Would you be available for a short face-to-face interview with the researcher anytime in June, 2012?

☐Yes

☐No

☐Maybe

Thank you so much.

APPENDIX 11

Interview Topic Guide

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	
Gender	
Your highest educational qualification(s)	
Company's Name	
Job Position/Title	
Department	
Time with firm	
Time in position	
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	
Nature of business	
Ownership	
Staff strength	
Staff range of educational qualifications	
Company's investment size (excluding land and working capital)	
Age of firm	
Company's location	

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

Q3. For what business tasks/operations/activities do you use ICT ?

Q4. What are your expectations from the ICT you are using to support your company's business?

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

Q7. To what extent is ICT meeting those aspirations?

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

Q9. How did your company run its business activities in the past when there was no ICT support?

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

Q12. In what specific ways is your company performing better or more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology/ICT to use in your business activities?

Q14. To what extent do local factors influence choice of ICT used by your company?

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm’s business performance?

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

Q19. Who initiates ICT deployment in your company and drives its usage?

Q20. What common challenges/problems do you experience in using ICT to facilitate your company’s business performance?

APPENDIX 111

Interview Transcripts

Interview 1 Transcript (Firm A)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**53**
Gender	**Male**
Your highest educational qualification(s)	**Postgraduate Diploma, Lagos Business School**
Company's Name	
Job Position/Title	**MD/CEO**
Department	
Time with firm	**1997**
Time in position	
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Strategy Firm**
Nature of business	**Consulting, Professional services to different companies and sectors**
Ownership	**Sole Proprietorship**
Staff strength	**10**
Staff range of educational qualifications	**Bsc, MBA**
Company's investment size (excluding land and working capital)	
Age of firm	**15**
Company's location	**Victoria Island**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We subscribe to internet service, have a website, computer, smartphone, email. We do have our own internal email service. They are basically for communication, research (internet). We depend on internet for research. Without, them we would struggle to function. I could work anywhere in the world without being present at my office in Nigeria. I could interact with my staff, hold meeting through Skype and run the company's business from overseas. Right now am forwarding some templates I did about six years ago to some of my partners in Dubai and India. In the past, it would be impossible. So they have really enhanced our capacity. It has helped go more paperless. It has assisted in the areas of information and knowledge management system.

Q3. For what business tasks/operations/activities do you use ICT?

ANS: Communication, research and marketing. For promoting the firm, direct marketing and so on. We also use for some delivery of online services.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: For ease and facilitation of operations, drive down cost and make life easy.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: Same as above.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?
ANS: Same as above. Besides,

Q7. To what extent is ICT meeting those roles?

ANS: To some extent, because we occasionally have challenges with the bandwidth strength/speed of the internet here in Nigeria. It could be very slow. So, sometimes we are constrained in using internet to the optimum in our operations.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: In the past, operation was too tedious. In the 1980s, when office productivity tools such Lotus, Dbase 2, Dbase 4, word perfect, windows and much later in the 1990 internet came along, we started using them to perform most our operations.

Now computer, internet is taken for granted in all our operations. We never used a consultant. We just followed the trend and deployed them to ease our operations. But at some point, I used service providers to ensure our ICT network in the office works optimally, especially our local area network. In fact, we used to have them on retainer ship. But I just stopped recently, because I do not see much value added.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: Everything was manual, so tedious. Using calculator and so on for computation. . Even putting a report together then was a nightmare. You have to write, and then give it to somebody to type. If there was an error, they would need to retype and so on. Today, even if I have to do an 800 page report, it is much easier.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: I don't think we can live without ICT now. Its like saying without aeroplane, you should go to Birmingham by foot, it is just not possible. It is unimaginable. We couldn't have functioned at our level now without ICT. The impact has been huge.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: The impact has been huge.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: In any way, it has affected everything we are doing, apart from cleaning this floor! Everything is affected by it. For instance, my secretary staff, they can't function without their laptop. They can't reach me without it. Everything is automated.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: Most of our clients are professionals in their respective line of businesses, with comparable high level of sophistication and appreciation of ICT-driven tasks/work process. So we are guided by this understanding and always relate with them at that level with respect to business communication and relationship management. I have had business meeting with a client in Dubai through SKYPE

and the outcome was very productive and mutually-rewarding. In other words, the clients I work with are as ICT-compliant as any company in the world. Most if not all of them have local area network, core computer applications to do their work with internet/intranet connectivity and understanding of how all these impact positively on work output. Also, I consider what am trying do to and what my business needs to deliver optimally.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To some extent.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Yes. Because our customers' level of ICT-compliance and sophistication is top-notch, we are able to leverage the best facilities ICT could provide to facilitate our mutual business interactions. Results have been seamless, mutually-rewarding business outcomes.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Level of sophistication/ICT compliance of our clients

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a great extent

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: Our automation is in terms of office productivity tools, because we are not a factory or a process organisation. We use computer as s productivity tools. Writing or taking note, we use computer, developing financial models or other number-driven models, we use excel, we use power point to write report or making presentations. As a professional service provider, office productivity tools are the heart of our use of computer. Re-engineering processes, we use visio and other application. We use specific tools for specific task. We use the internet most of the time for research, we use for conducting survey etc.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: Myself.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Cost. It could be a bit expensive, whether you want to but computer, software, or get internet connectivity. It is still very expensive in Nigeria compared to countries in the developed world. Bandwidth itself, which is also linked to cost. Fast band with is very expensive and limit how many could afford it or join the bandwagon. Quality of reception could also be a problem.

Interview 2 Transcript (Firm B)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**Male**
Gender	**33**
Your highest educational qualification(s)	**Msc**
Company's Name	
Job Position/Title	**MD/CEO**
Department	
Time with firm	**17 Years**
Time in position	**17 Years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Telecoms and IT Support**
Nature of business	**Telecoms and ICT**
Ownership	**Privately-owned with few individual shareholders**
Staff strength	**38**
Staff range of educational qualifications	**SSCE, Msc**
Company's investment size (excluding land and working capital)	
Age of firm	**17 Years**
Company's location	**Victoria Island**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: As a company, we evolved from a retailer, a recharge card seller. A one man business starting off with selling recharge cards to customer base that majorly are low income, unenlightened individuals in Ajegunle. What was important to them was just buying recharge and move on. Business relationship and interaction with them was through physical contacts. Communication was not really an issue. When we became wholesaler, our customers are still unenlightened but they are retailers. It was important for us to develop relationship with them to ensure their continuous patronage. We were using phone calls and sms, but they do not have access to other means of communication such as internet. The only way we could reach them is by mobile calls and sms. We moved away from that market and relocated to the island servicing corporate organisations that are willing to outsource their telecoms needs. We manage their Telecoms and IT support. We are dealing with highly educated, enlightened corporate bodies who don't mind parting with some cash to a more structured organisation to manage their IT and Telecoms needs. They are technology savvy people who want to be on top of new technology. It is important for us to change our business strategy, also because we are also in a business of ICT. So because our business has changed from recharge card retailer/wholesaler to IT and Telecoms support service provider, it is pertinent we also have to be highly technologically-driven in all our business interactions and dealings. You could see that the level of education and status of our targets determine what and how we

interact and communicate with them. ICT, particularly internet is a tool of communication and research to us. It is the major medium we use to engage in business interaction with our clients in this area. We can't really do without it now. The clients we support, because they have outsourced their IT and Telecoms services to us, they expect to be furnished with latest in communication technology and how it could facilitate their business process. Recently, we were approached by an informal sector, the Lagos State Transport Workers' union, a very different target audience. Yes they want sophisticated communication tools and gadgets, but most of the functionalities that come with it make no meanings to them. So we had to treat them differently. Phone calls and sms are what make meanings to them, hence the package we structured for them is along this line and we also interact with them through the same media of communication.

Q3. For what business tasks/operations/activities do you use ICT?

ANS:

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: It is a tool of communication, research and business enabler.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To a very large extent. We started from a modest beginning when the only way to access the internet was to go through a cyber café, and when, because of the nature of business then, when were not using the internet.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: We expect an improvement in internet speed and believe that would also facilitate our business development as a service provider.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: It was a critical decision to move from recharge cards dealer to VPN. We used to depend on a company in South Africa to run our server when we first started managing corporate client as service provider, but now we have our own server. Everything we have been deploying as a company to facilitate our business activities has always been need-driven, either we thought our clients would benefit more or it would serve us better as an entity. For we had a website because we thought we have

a client base that is geographically spread and need to be managed and furnished with latest information. At a point we thought why we should continue generating memo and approvals manually as an IT provider when there is a software template on which memo and approvals can run.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: It was point to point, direct sale. We had marketers who go on the field to sell recharge cards to prospective buyers. At sale point, they sometimes deliver bulk of recharge cards to certain retailers as well. Now we have dedicated mobile phone to contact our clients. We have online chat; people can make enquiries online, get feedback online. In the past because our target audience were low income, uneducated that are approached from street to street by our marketers, physical contact was the major point of communication and business interaction. But now that our target audience is now more enlightened, corporate organisations/firms, the issue of email, live chats become more imperative.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: In the past, our business was geographically restricted. We could only sell/approach customers within our vicinity. But now we are able to market/sell

across the state. We even have vendors all over the world – suppliers and others we transact business with. We are now able to do business in a wider capacity, thanks to internet facility support. We are able to showcase some of our service through our website. There is a multimedia online presentation on our website that showcases what we do to prospective clients all over the country. How could this be possible without the internet? When we were running a recharge card business, all the people we serve were in one geographical area. Even though we were ambitious in terms of expanding our customer base beyond that region, we were limited because of absence of communication platform like internet. Now we can serve customers outside our area of operation, outside state and even outside the country. Now we can also exchange expertise locally and internationally. That is why we now have vendors in places like UK and China, and we could easily support each other.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS:

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: Reaching out, networking and so on.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: Affordability and Level of education of our target audience. The fact they are educated does not necessary mean they are familiar with some of the communication tools you want to use as service provider in relating with them. Also some of them still find internet connectivity too expensive, even though that is changing now. You would also expect a scenario where all your clients have a functional website, functional customer care team, dedicated email facilities, SKPE, etc. Communication would be seamless and impact more in facilitating mutual business performance. We experience a semblance of this from our relationship with most corporate our clients in Victoria Island or Ikoyi, but when we have to transact business or manage business relationship with informal clients like local transport unions and other similar associations who do not have most of these communication facilities, our service delivery is often negatively impacted and compromised. Some of them would tell they have all these facilities, but those media are never active when you try to interact with them. We try as IT and Telecoms service providers to educate them on the benefits of using these tools.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a great extent.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Sure. Because what in means is that if am able to reach out or manage 10 clients effectively or better now through internet facilities like Skype, online chat and so on, it means the number would increase if more clients are also connected.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Level of education and purchasing power.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a great extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS:

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: Myself.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Unavailability of some basic tools. Some software, router or hardware that you want to work with might not be available locally, so it is a major hindrance for us as a company.

Interview 3 Transcript (Firm C)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**40**
Gender	**Male**
Your highest educational qualification(s)	**Msc**
Company's Name	
Job Position/Title	**Administrative Manager**
Department	**Administration**
Time with firm	**17 Years**
Time in position	**10 Years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Educational Institution**
Nature of business	**Nursery, Primary and Secondary education**
Ownership	**NGO**
Staff strength	**85**
Staff range of educational qualifications	**NCE, MSC**
Company's investment size (excluding land and working capital)	
Age of firm	**32 YEARS**
Company's location	**Victoria Island**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use customised programmes (softwares) on our computers to coordinate all our operations (Academic, HR, Accounting/Payroll, Administration, and Store Management) as an institution. We have an active website that hosts every piece of information about the school, and very computer is networked with internet connectivity.

Q3. For what business tasks/operations/activities do you use ICT?

ANS: For academic activities. We use the internet facilities to support our students' educational activities, and monitor what they do on the internet, to ensure it is purely for academic purpose. We give them assignments and administer them online, with the support of their parents. It is easier because most of the parents have computer and internet access at homes and support their kids to complete their assignments. Some parents even give their laptops out to their children on some occasions for school's academic activities. The parents pay their kids' tuition fees online and we acknowledge accordingly. It means they are able to interact with the school in the comfort of their homes/offices with little or no disruption to their normal daily activities/engagements. It also means we as a school are able to administer our tuition collection better and manage our finances much more efficiently. We have customised internet-based facility that sends instant messages to the parents' email

contacts, especially as regards their children's tuition fees. Sometimes they call/email us ahead of time requesting for their kids' tuition fees for the next session. So we always send the breakdown of the bills to their email addresses. Unlike in the past you have to type out so many letters detailing any message you intend to send across to the parents, post them to their addresses or sometimes send them through their kids. The letters would take days to be delivered or some kids would just misplace the letters or deliberately destroy them if they suspect the content is about their misdemeanour at school. Also we used to deal with lot paperwork in the course of our activities, but that is all in the past now, as every department is now networked and linked to one another. So we now complete most of our activities that involve interdepartmental inputs with less time and resources.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: Because the world is a global village, we expect ICT to facilitate better networking with other educational institutions around the world.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To ease operations, fasten the process and achieve more accuracy. Also faster delivery, quality output/report generation facilitate academic research. All these are being achieved.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: Ease of operations.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: The school was established in 1980, there was no computer or we were not using any then. Every we were doing was manual. We were using typewriter for some administrative duties that required documentation. Students' files/documents were all tack up in designated room. We started using computer gradually in 1993. From 1995, we had to expand our physical structure to cope with the student population. Also we saw what other schools in the vicinity were doing in the area of using communication technology to support their administration, so we charged our IT department to work out how we can also automate our operations for better coordination and improved efficiency. Based on the recommendation of our IT team, we hired a consultant to network all our departments and automate all our operations – human resources, accounting/payroll, academic, administration and so on. This is

what led to various computer-based customised programmes that we currently use to run our activities, and their influence in terms of efficiency, quality of output ease of use has been immense.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: It was all analogue, very tough, although we thought we were working. And we were indeed working. It was just that productivity was very tedious and tiring with the tools that were present. For example we were always using typewriter, and each time there was a mistake you have to retype, perhaps all over again. Now everything is easier, less time-consuming, faster more accurate. If one computer develops any problem, you just move to the next one and get the job done. Our activities used to be very exhaustive and time-consuming process. For instance, to call a parent meeting, you have to manually generate letter to each parent and send it through their respective child. We believed that was the fastest medium by which the letters could be delivered, because it would take more days by post. But some kids would also misplace the letters and it could take days trying to organise a successful meeting with reasonable number of parent in attendance. Now we have a database of every parent's contacts – addresses, emails and mobile phone numbers. So within minute, we can send message across virtually to all of them.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: The contribution has been 100 percent compared to the pre-ICT period.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Yes, as stated above

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: That is exactly what we have been saying. It's less cumbersome to send message to parents, save administrative hassles also. Work processes are much quicker because we exchange documents through our computer with less need for paper documentation. It has assisted the teaching staff in the area of research. Our curriculum is comparable to the best in the world, because we do research and keep abreast of development in educational sector.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: Complaints from parents about their kids having access to some immoral sites online. Some of our kids have gained a very strong mastery of technology control/manipulation to the extent that they do find their way around some blocked and prohibited sites that the school has judged to be in bad taste for their upbringing. So we are always tightening our control and monitoring mechanism on internet access within the school premises. And unless it very essential to a particular academic task at hand or an academic tutor is present, we always restrict internet access to our students in the school.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a very great extent. The complaints from parents inform our ICT policy as a school. As a matter of practice, we are always upgrading our ICT network to the latest available that could give us greater content monitoring and more flexible control over what the kids could access.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Yes. Because such complaint by the parents adds impetus to the research efforts of our IT team who always have to constantly look out for and advise on the best upgrade that would offer much tighter access/content control without compromising the potential of ICT in facilitating our administrative efficiency.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Complaint by parent about the need to guide and restrict the site the kids are exposed to.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a moderate extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: In the 1990s. Administrative processes, accounting processes**.**

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: The IT department/team

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Occasional server breakdown, signal failure. There was a problem with power failure, but we are working around that. We have standby generators.

Interview 4 Transcript (Firm D)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**43**
Gender	**Male**
Your highest educational qualification(s)	**MBA in Management**
Company's Name	
Job Position/Title	**Managing partner**
Department	
Time with firm	**18 Years**
Time in position	
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Consulting**
Nature of business	**Company restructuring, investment management advisory**
Ownership	**Partnership**
Staff strength	**15**
Staff range of educational qualifications	**OND, MBA and other professional qualification**
Company's investment size (excluding land and working capital)	
Age of firm	**18 Years**
Company's location	**Lekki**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: Internet, computer and mobile services. We use internet for research and internet

Q3. For what business tasks/operations/activities do you use ICT?

ANS: Research, business intelligence gathering, accounting/payroll function, clients' data management, leave administration, performance management and other customer service activities.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: To keep abreast of happening internationally. We also expect it to facilitate our marketing communication efforts.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To achieve visibility, credibility and save cost. When we send out proposals sometimes, prospective clients tend to check to find out if we have a website. That tends to establish us as a serious organisation to some clients.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: To generate business intelligence/data. To provide us necessary information about happenings in the financial world. Because the world is a global, we need such information to be able to know the happenings outside our operating environment and they might affect us directly or indirectly.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: For our accounting management function, we used a consultant for advisory purpose at some point to know the right accounting management software to deploy. That has helped us fast - track our accounting function. Initially, we were not into

financial advisory until recently. We started using internet facilities to aid our function as financial advisory company in terms of research on best global best practices, management models and so on.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: Then everything we do had to be manually processed. But now we can finish our assignment and forward it to the appropriate department for their input, and thereafter forward to the clients online, saving cost, time and tidy up our work process. Sometimes, we might forward hard copies to clients, but that will be much later. It means they can receive timely feedback from us through the internet, use the information to attend to their own business needs and improve their work process. Unlike in the past when you have to be present in the office to complete any particular assignment, with the use of internet now, some of us conveniently work at home and complete major assignments without coming to the office. It is a matter of working on our laptop or computer at home and forward completed work to the appropriate quarters. Initially before using computer or internet facilities, we used to have more support staff to assist in basic tasks like typing, filing, documenting and other administrative duties. We no longer require many of such staff complement, as we could perform many of such tasks more efficiently using our computer facilities.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: It has significantly reduced the amount of time we spend completing an assignments. It has also added a lot of efficiency to our work process and enhanced the quality of our output.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Off course.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: Our operational cost has reduced significantly. Our assignments are completed much quicker and the quality much better.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: We are able to compare the services of many service providers that are available in this environment. So we can easily shop around for the provider with the best services possible to meet our needs. Most of our clients in this area have internet facilities at their homes and offices. They hate excuses, want prompt services and are quality conscious. We have to ensure different functionalities on our communication technology facilities (such as website) are always active and are the best available to meet their needs. Sometimes we have to move beyond what they can easily get in terms of service delivery and use the internet facilities most of the time to achieve this.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a great extent, because realising how demanding our clients are in this area makes us go the extra miles to delight and satisfy them with respect to capacity and strength of our ICT architecture.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: For business reasons, we are compelled to deploy the best ICT available and right combination that has the capacity to surpass our clients' expectations. As a result, we enjoy great customers' satisfaction in terms of quality and promptness of service delivery and suffer less customer attrition.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Quality consciousness and sophistication of our clients.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a great extent. It is a win-win situation. Because we are driven to use/deploy the best, we are positioned to leverage the capacity of our ICT to delight our clients and achieve our business objectives.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: In 1999, accounting/payroll function, clients' data management, leave administration, performance management and other customer service activities.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: The management

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Sometimes some of the information/data you get on the internet might not be reliable. Hence, we are always selective in using internet to generate business data.

Interview 5 Transcript (Firm E)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**58**
Gender	**Male**
Your highest educational qualification(s)	**HND Accounting**
Company's Name	
Job Position/Title	**Chief Accountant**
Department	**Account Department**
Time with firm	**1997**
Time in position	**Since Inception**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Retailer**
Nature of business	**Trading in Wares, Clothings, Fashion wares for men – corporate, casual etc**
Ownership	**Limited Liability formed by group of people with common interest**
Staff strength	**11**
Staff range of educational qualifications	**SSCE to Bsc**
Company's investment size (excluding land and working capital)	
Age of firm	**15**
Company's location	**IKOYI**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use computer to run the accounting system and hold database for all our customers. Internet is used for communicating with our customers, as we have email addresses of our customers. We also use phone to communicate with our customers.

Q3. For what business tasks/operations/activities do you use ICT?

ANS: To communicate with our suppliers broad through the internet for procurement of new fashion and product. They also get back to us through the same medium most of the time. The company has a website, official email. We use our website for advertisement also.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: Efficiency. Improvement in communication and facilitate business operations and transaction. And to add value to the image of the company, because we have a lot of customers who always want to get across through the medium of internet, and if you are not online you are more or less shut out of competition.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To facilitate the running of the company and to add to the image of the company as 21st century institution that is open to this outside world, so that any part of the world can reach us regularly.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?
ANS: We are trying network with other branches of ours that operate in other parts of the state, in terms of ICT connectivity, such that the MD/CEO could monitor what goes on in other branches in terms of sales, stock and other issues. We expect ICT to facilitate this. So, we intent to constantly upgrade our ICT architecture to achieve this.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent. But because of epileptic electricity supply, we have to ensure our alternative power supply is up and running to power the facilities.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: When we started in 1997, the major means of communication was landline telephone/fax. We use it to reach out to customers that we could reach on landline.

But we were restricted in our reach. After a while, we contacted a consulting firm to assess the situation with respect to what we need as far as ICT deployment is concerned. The first of what we had was an accounting software, and then we had to install another system (POS) that monitors the sale. The internet/website connectivity came five years ago. So, initially everything was manual, we the contracted a consultant and thereafter we started introducing/deploying ICT.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: Everything was manual.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: There has been an improvement in database management. We now have access to our online business. Also we could generate different reports from our computer/software within a click. The reports are more accurate, up to date and take less time and the quality is much better. Much time was consumed in managing our sales data manually in the past, but this is now done much faster with computer.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: We now have an increase in our customer base. We can now reach wider customers through our website advertisement and publicity. We generate faster reports, communicate with much ease to our customers and we are now able to reach out to more vendors. Before, we had to write by post to prospective vendors for supply, and before the order is processed the customers might have cancelled the request because of time wastage, sometime running into weeks. But now we communicate directly either by mobile phone or through email and deal is settled without delay.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS:

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: We think and consider the level of sophistication of this place, being an area of highly educated, widely travelled upper class community. Most of them are exposed to ICT, so we are conscious of that. That actually gave rise to the need to launch a website in the wake of ICT revolution. We also have to ensure that our website is user-friendly in terms of processing transaction and attending to customers' request. We also ensure that website design, software we use and other interactive menus on our website are top class in terms of design so as to meet up with the level of people/customers we serve.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: We always go for the best available in our ICT deployment to meet the standard of the customers in the community.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Most of our customers are corporate organisations in the area like banks. So if our ICT is not sophisticated enough to meet their taste, we will find it difficult to relate with them or even survive in this environment. So, the level of sophistication of customers we serve informs our ICT deployment, which on the other hand helps us to meet their standard and taste, and then survive as a business entity. For example if don't have an internet or website that is constantly functioning and

accessible, our performance will be affected because we deal with customers who always have access to the internet and might want to check a particular product anytime or make an online order to be delivered to them at a particular time.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Sophistication of customers etc.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a great extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS:

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: The MD. He then sought the approval of the board, whose members are very enlightened widely-travelled, and exposed to practices worldwide.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Persistent power outage, constant change in ICT that requires constant upgrade to new version as well as the challenge of the financial commitment to meet up with the need for constant ICT upgrade.

Interview 6 Transcript (Firm F)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**39**
Gender	**Male**
Your highest educational qualification(s)	**Bsc**
Company's Name	
Job Position/Title	**Head, Human Resources**
Department	
Time with firm	**15 years**
Time in position	**10 years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	
Nature of business	**Insurance business – home, vehicle and other insurance activities**
Ownership	**PLC**
Staff strength	**105**
Staff range of educational qualifications	**Bsc, ICAN**
Company's investment size (excluding land and working capital)	
Age of firm	**20 YEARS**
Company's location	**Ikoyi**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use computer, internet for all our business transaction and dedicated mobile phone for business contacts.

Q3. For what business tasks/operations/activities do you use ICT?

ANS: Computer is used for all our daily operations. We use mobile phone to contact to them. With internet, we are able to market most our products and process payment and claims settlement. Some of our customers from this area pay their premium online through our website**.** Basically for all our business operations – processing claims, relationship management, generating reports, making presentations to clients and so on. We also use in-house internet facilities to process staff loan request, leave administration, information dissemination to every members of staff and performance management activities like periodic staff appraisal, grievance management and staff training.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: For ease of operation and customer relationship management

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To achieve paperless work environment and drive down cost in the process as well as improve our customer relationship management. They ate being achieved to a great extent.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?
ANS: To support total operational efficiency in terms of turn-around-time and boost productivity

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: Initially we run our operations manually, with lot of paperwork and time wastage. Now, everything is automated. Staff and customers' records are easily traceable on the computer. Most of our marketing activities are done through our

website online and we generate less amount of paperwork in our work process now, because we always work on the soft copies using computer and forward completed activities/transactions to the appropriate staff for necessary actions/follow-up. So our turn-around-time is shorter now and the company spends less on postal services and paper-based transaction.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: It was more of letters, paperwork, using fax machine as well. We were also making use of landline phone facilities, because few of our customers/clients had it and could be contacted through, even though it was very expensive to maintain. We used to rely so much on postal services to send important documents to customers and business colleagues. Virtually everything we do was through manual process. Marketing involved moving from place to place to woo potential customers. Customer as well as staff records were all manually documented and filed away in our filing room. Even though the filings were done alphabetically, tracking and retrieving staff or customer data was very tedious and time-consuming. We used to have two dedicated staff managing staff records and three staff were put in charge of managing customers' file. Despite this arrangement, a lot of staff and customers documents always went missing.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: The contribution has been immense and our mode of operations has been transformed from manual, time-consuming work process to seamless operational efficiency.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Yes. As stated before, we spend less time consummating our transaction, spend less on paper-based transactions and now operate an up to date staff and customers' records management on our computer software. Now, we can easily send a message to our clients about their policies and get immediate replies on the basis of which we can make instantaneous business decisions. We no longer have to rely on postal services, which did not use to even guarantee delivery of letters/message sent through it in the past. Even when the message is delivered, it would take days. In other words, it would cost us more time and resources to complete a transaction that we take for granted now.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: Clients can now call us on their mobile, we can direct them to website where they can buy their policies and we can immediately scan their documents to them online. Cost reduction, time saving and better staff and customer relationship management. Without seeing one on one, we do business now.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: We always set out to benchmark our major competitors we operate. The kind of communication technology they use in their operation sometimes informs our decision. Also, we consider the best way to achieve customer satisfaction and boost their patronage by considering means of communication they are used to. We relate with most of our high income customers and corporate clients through a combination of email communication and mobile contact, while majority of our individual customers that are served by our branches operating in low income community are mostly contacted through their mobile contact. However, we do schedule face-to-face meetings with any of them as situation demands. Also, we do more work and spend more resources when dealing with our clients in the low income areas. Where we can always reach and manage our clients in the affluent community online and

forward necessary documentation to their email, you cannot do this with most of those clients in areas like ajegunle. First, you have to find out if they have access to the internet, which oftentimes is never the case. Then you would need to pay extra to private delivery companies to get their documentation to them.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a great extent. We do consider the situations of our customers in different communities and their ICT use behaviour in our choice.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Yes. Because understanding our customers' different social and economic situations and nature of ICT each category of them is likely to be accustomed to help us interact with them with the most suitable communication medium that could improve our business relationship with them.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Socio-economic status of different categories of clients/customers. For those customers in lower income bracket who cannot afford internet access, we are

constrained as a company in using some internet-based channels that might be cost-effective in facilitating business relationships with them. In extreme cases, some of them might even be impossible to contact on phone. In such situation, you have to devise other means, oftentimes costly to reach them and resolve the issue or settle the transaction as the case may be.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To some extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: In the 1990s. But we kept upgrading.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: It was the management decision.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Occasional signal failure, Power interruption. Slow response from the system, which put off some clients/customers.

Interview 7 Transcript (Firm G)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**49**
Gender	**Male**
Your highest educational qualification(s)	**MBA**
Company's Name	
Job Position/Title	**General Manager**
Department	
Time with firm	**17 Years**
Time in position	**12 Years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	
Nature of business	**Retailing – Wares, clothing and all other materials for mother and babies**
Ownership	**Diversified – private as well as a number of individual shareholders**
Staff strength	
Staff range of educational qualifications	**Bsc, Hnd**
Company's investment size (excluding land and working capital)	
Age of firm	**17**
Company's location	**Idowu Martin, Victoria Island**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We have internet facilities, website where we showcase all our wares. People are now able to shop online through our website. We use computer and have a site where we keep our customers data, all their sms numbers, so each time we have new products or materials, we send bulk/mass sms to all of them and even prospective customers whose details we get from marketing agencies. And the experience has been tremendous in terms creating awareness, increasing our customer base and marketing our products.

Q3. For what business tasks/operations/activities do you use ICT?

ANS: We use internet for ordering as well, because we have a software that links us with our parent company in the UK. We are currently working with a logistic company to be able to work out how we deliver our products directly upon request to customers outside Lagos sate.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS:

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To be able to meet up with what is operating internationally whereby people can make purchases in the comfort of their homes. Bringing business down to the people anywhere they might be located, instead of them coming to you, you go to them. That is the trend now. Because the cost of hiring shops is very enormous. So we want to be able to reach every possible customer anywhere in the country, even where we don't have a physical presence. For marketing, ordering and delivery of our products to wider spectrum of the population at reduced cost.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: To make us more competitive, and reach wider population and increase our profitability.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent. We can see the impact on our sales, and number of potential customers who make enquiries about our products they see online has increased tremendously.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: Before getting Mother care franchise, we started as one-stop retailer with four branches spread across the state. Marketing was basically through word of mouth and referrals. Customers had to make a visit to any of our branches to view our stock and make purchases. We were running every aspect of the business manually – from stock taking to accounting, delivery and so on. When we got the franchise, we started with a consultant who introduced a dos-based system for our operation. We thereafter shifted to window-based software which can capture our stock update at a particular and is also used for our retailing. We are able to monitor our stock in other branches without the need to make a visit. It is a great improvement in terms of cost savings compared to when we used to visit every branch and do the stock taking manually.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: Everything was manual, time-consuming and tedious.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: It has impacted greatly in terms of service delivery and general operations. At present the MD is not in the country, but we are able to run the business with his input through the internet facilities.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Yes.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: Stocking monitoring, information delivery, timing for ordering stock are much better now. It saves a lot of time.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: First, because we are operating on Victoria Island where most of the ICT providers are located, we are able to make choices. We can easily change our service provider if they are not meeting our expectation. Second, we are able to send bulk sms to all our current and potential customers because they all have access to mobile telephone. However, we receive more online responses from customers residing in Victoria Island because they all have internet access, and we also relate with them much of the time through the same medium.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To some extent, depending on the type of customers we are dealing with. With highly educated, high income residents/customers here on the island, who are better exposed to online interaction, we relate with them online, even though we also communicate/interact with them concerning their particular request through mobile phone contact. However, mobile contact is the most effective to reach/relate with our current/potential customers in other part of the state. It is the most affordable and accessible medium to them, and we always exploit this, especially when we need to send bulk message to all of them at once. So we are flexible in our choice of medium, depending on customer target.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Yes. Because it allows us to be flexible in our choice of ICT, hence we are able to achieve our marketing target. We are able to reach/deal with every segment of our customer base through the most cost-effective medium available to them. The rich are not complaining and the poor are not sidelined either. Although the perception in Nigeria is that Mother care is for the well-to-do, but we have a reasonably growing customer base and enjoy significant patronage from the low income earners in the state.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Availability of numerous service providers in Victoria Island which makes it possible for us to make an informed choice about which one among them could offer us the best services for our business. Also high cost of some ICT like internet connectivity/access, which makes it unavailable to most of our customers in the low income areas. However, we are able to apply flexibility and approach each segment of our market with the most appropriate medium.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a moderate extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: We started with stock automation on DOS, with limited functionality. You had to do your stock on a particular day of the month, otherwise you have failed for that month because other sales might have been included. But now you could go back to your stock level as at a particular month, with more flexibility. So our stock reporting has improved, so also our marketing and ordering.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: It was the marketing department that coordinated it with every department having an input with respect to their particular functions/units.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Service delivery. Poor service delivery from the providers. Downtime, slow response and so on. Cost of diesel to power generator, because most of the time there is no power supply**.**

Interview 8 Transcript (Firm H)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**66**
Gender	**Male**
Your highest educational qualification(s)	**MD, General Medicine**
Company's Name	
Job Position/Title	**Medical Director**
Department	**Management**
Time with firm	**Since inception in 1979**
Time in position	**Since then**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Hospital**
Nature of business	**Medical Practice**
Ownership	**Family Business**
Staff strength	**35**
Staff range of educational qualifications	**SSCE, MBBS**
Company's investment size (excluding land and working capital)	
Age of firm	**1979**
Company's location	**Shogunle, Oshodi**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use Laptop, internet, cellphone. We communicate through internet with some of our patients and Health Maintenance Organisations. We use mobile phone in particular for communication with our patients anywhere they may be concerning their health concerns. More often than not, we attend to most of their health concerns on mobile phone by listening to them and then tell them what to do without necessarily coming to the hospital. This saves a lot of time unlike in the past before the advent mobile phone when most people would just flood the hospital for minor health issues that require them to just have some rest at home.

Q3. For what business tasks/operations/activities do you use ICT ?

ANS: We use the internet also to update ourselves with current trends in the field of Medicine, new drugs. We use computer for patients' data management and general administrative activities like registration of patients, taking stock of our outgoings. Also, these days, patients come to the hospital without their medical cards. We would just call up their details on the computer and attend to them. In the past, you have to always come around to the hospital with your medical cards for identification, otherwise we would find it difficult to track your medical records with us.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: To improve our knowledge, because when we started the practice there was no computer or internet. But the world is moving forward, and we have to update ourselves to be relevant**.** Some of our patients these are computer literate. Before coming to you, they have already done their background checks on the ailments they suffer. So if you are not current with latest information, you would look stupid to them.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To improve our services. It has made our work easier. It has also reduced the level of fraud, because you can document patients' data, how much they pay at a particular point in time and keep the records on the system for years. You could track such information anytime with 100 percent accuracy for fraud prevention and auditing accuracy.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: Continuous service improvement.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: When we started in 1979, computer was not common in Nigeria. We started in a room and parlour, then rented a flat thereafter moved to our current permanent location. It was when we moved here in 1999 that we realised we needed to automate our activities, because computer has been in existence by then. We were finding difficult to document and keep track of our patients' records, especially when they don't come with their medical cards. So we thought it was about time we automate our data/records management and administrative activities. We networked the entire hospital. Each consulting room has cashier, pharmacy and other department – all networked to other part of the hospital so that I as the Medical Director could assess/monitor their activities from my office. We hired a consultant to do this.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: We were using exercise books and delegating the hospital administrative activities to people. Different people were in charge of manually documenting every activity such as: patient' registration, bookings, stock taking, cash management and so on. Off course there was so much fraud because coordination and proper monitoring was a problem. Managing or attending to emergencies was difficult then because the only means of communication was the NITEL (GOVT-owned landline telephone facility), and very few people could afford it in their homes. Besides, the services were even so bad that you would just be wasting your time using it during medical emergencies. The only practical way out would be for the relative to bring the patient to the hospital or come to the hospital first, report the emergency, then we would send the ambulance to the address. Also, we could only rely on periodic medical journals for update in medical research and other related issues, unlike now that we are updated as it happens on the internet.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: Without any doubt, it is much easier now, faster and less stressful to conduct our operations, thanks to communication technology.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: It is very significant. Even when I travel outside the country, am able to monitor how the business is run, attend to some patients' medical issues and give directives to necessary quarters.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: Where ever I am all over the world, am abreast of what is happening to my business, unlike in the past when you travel for two, three weeks, before you come back, everything will be upside down. I can use my Nigerian mobile phone anywhere in the world, and patients can reach me anytime for medical issues. In the past, once you leave the country, nobody can reach you and you can't monitor how your business is run.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: Because we have patients that we serve from every part of the state even though we operate in a low income area, it is a matter of which medium of communication will be appropriate depending on the educational level and communication habit of the patient. Most of our patients who cannot read are contacted by mobile phone calls, if there is a need for that and they could also call us

directly. We have options for our few rich and better educated patients. We could send message to their emails contacts or phone, and also follow up with mobile calls if required.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a great extent.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Yes, because sometimes the cost of mobile call could be very expensive compared to sending text message. You would need to spend more time on phone, trying to describe a particular prescription to a patient who cannot read. You could spend less time and money sending an sms message about the prescription, because some mobile phone contracts in Nigeria come with free sms.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Level of education of patients.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To some extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: 1991, patients' registration, financial records and so on.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: It was my idea.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Power is a challenge. Poor services from mobile phone and internet service providers – signal failure, fluctuation etc.

Interview 9 Transcript (Firm I)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**39 years old**
Gender	**Male**
Your highest educational qualification(s)	**Bsc**
Company's Name	
Job Position/Title	**Head, Technical and Training**
Department	**Human Capital**
Time with firm	**15 years**
Time in position	**10 years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Insurance**
Nature of business	**Life brokerage, pension fund management and other related insurance businesses**
Ownership	**Partnership**
Staff strength	**50**
Staff range of educational qualifications	**Majority of Staff have Bachelor Degree as well as other professional qualifications**
Company's investment size (excluding land and working capital)	
Age of firm	**47 years old**
Company's location	**Low Income area of Ikorodu Road, Lagos State**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use computer, internet as well as mobile telephone, basically to communicate with our clients. We also use them to link up with other insurance companies, including other clients and businesses we have mutual business dealings with. We also use computer to store our database, update our customers'/clients' records. We are able to reach our clients and other business associates anytime through the internet mail and their mobile phone contacts without the need to travel distances. This saves a lot of resources – both time, cost and amount of efforts normally dissipated in the past. They bring a lot of ease to our transactions. You don't need to visit a business associates in other part of Lagos, except your physical presence is actually required before you can seal a deal or engage in other business transactions. In transactions that involves official document exchange, you can exchange soft copies through the internet to quickly seal the deals and thereafter send the hard copies by post thereafter, if required.

Q3. For what business tasks/operations/activities do you use ICT ?

ANS:

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: To make our job operations easier. Rather than going to the filing room and spend hours looking for file or other documents like in the past, we expect to call up any major documents or file from the database on the computer just by a click. We have been able to achieve this. Accessing file or other documents is automated and most of our other activities are digital.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: Precision and exactness. Reduction in the amount of paper document we generate and save some cost in this regard. Getting precise answers to whatever it is you dealing with such as calculation through the use of excel for some computations that are involved in our work process. Also to achieve more presentable work output, efficiency in job output. These are being achieved to a very large extent in all our work process.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: We expect it to facilitate exchange of productive ideas among the staff. We also expect it facilitate seamless operational efficiency free of technical disruption/delays. We also expect to aid inter company communication more than it is currently doing, because some companies still don't use internet communication and this limits our communication channels to them. So the more companies that use

the platform for communication, ideas exchange and business transactions, the better for our overall performance and efficiency.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: Established since 1964. Then the company used to keep every documents in file and arrange alpha/numerically in separate rooms. Even with such alphabetical arrangement, you could spend a whole day sorting out a particular document/file. In some case, you could dig out dusty files stored away for years partly torn with vital data lost in the process. Communication used to be through landlines telephone, fax or by post. A lot of transactions take so much time to consummate and you had to make a lot unnecessary business visits to clients/business associates. A lot of business activities were done manually. But everything has changed for better since the 1990s. We now have IT consultants that have designed customised internet-based software, accounting packages to ease our business operations. Our consultants come in regularly to either do some upgrade, attend to technical issues and ensure the packages work optimally.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: Everything was manual, time consuming and tiring.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: Things are now done quicker, faster and more accurately with the deployment of ICT unlike in the past. ICT contribution has been immense and positive overall. Unlike in the past when human factors (such as tiredness, hunger etc) could greatly affect the accuracy of some business activities like computation or other complex calculation. Much of the computation is done now on computer with little human involvement (by way of some command on the keyboard) and with greater accuracy and quality output.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Yes. Things are done faster, quicker, more accurately and with quality/improved output. Nowadays you get some current business information and

other data from the internet and can plan your business swiftly according even before they get published in the dailies.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: Besides what has been said before, it has facilitated the storage, capturing and processing of business information and other data about clients that that are diseased. Unlike before, you can easily call up everything about any diseased clients/customer at a click without spending hours ransacking bunch of files and documents.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: Power or instability in electricity supply. This limits your choice of how to reach clients or other business associates. You cannot access internet without power or obtaining vital data from the computer. The alternative is generating plant, and this increases the cost of doing business. Also, most of the customers/pensioners we deal with here are low income, aged and illiterates who don't or find thing like internet too sophisticated or who are not computer compliant. We consider this in our interaction with them with respect to how or which medium we use to reach them. For example we have an online product that requires customers to append their

signature, but most customers in this category would prefer you print out the hard copy and send to them to sign.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a great extent. Even when we do launch internet-based product or must reach out to clients through the internet, we ensure we make it as basic as possible, knowing most of the customers we deal with are not internet savvy.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: To an extent yes**.** An ideal situation would be for every customer/client to be able to access and interact online. This could save us some cost in managing some products that could be dealt with online rather than resorting to occasional time-consuming manual processing.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Low literacy level, poverty level, weak infrastructural support such as electricity and so on.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: I think to a moderate extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: In the 1990s. Record keeping, Accounting systems, Performance management, Recruitment and some aspect of training.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: A collective decision by the founding management spearheaded by the British partners.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: The basic problem is power. We run on diesel most of the time. If the power goes out, we tend to lose valuable working data occasionally on the computers whose routers are not backed up. Also, you have to back up or wait till the switch-over to generator. Sometimes valuable time is lost, and your thought process might be momentarily affected if you are in middle of though-provoking work. Also, virus, technical problem etc.

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**47 years old**
Gender	**Male**
Your highest educational qualification(s)	**PhD**
Company's Name	
Job Position/Title	**Proprietor**
Department	**Management**
Time with firm	**25 years**
Time in position	**25 years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**School**
Nature of business	**Educational Institution, Nursery, Primary and Secondary Schools**
Ownership	**Partnership**
Staff strength	**90**
Staff range of educational qualifications	**NCE, Majority of Staff have Bachelor Degree in Education, then Msc**
Company's investment size (excluding land and working capital)	
Age of firm	**25 years old**
Company's location	**Low Income area of Ikorodu Road, Lagos State**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use the computer, internet and mobile phone, for communication and training (computer to be specific). We use sms to communicate to parents about school's activities. We specifically use free calls services on mobile phone that all the staff own officially to communicate and coordinate our activities across all branches. We use the internet for teaching support. We specifically have a class for ICT where we teach the students what are available on the internet, what to watch and what to avoid on the internet. Also how to access the internet and explore various educational materials from the internet. So we have ICT room specifically in the school where we do all these. We also have ICT curriculum that spells out as a school that outlines what we teach our students about ICT.

Q3. For what business tasks/operations/activities do you use ICT ?

ANS: For customer communication, to teach our student, for staff communication

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: To ease our operations and lower the cost of operation. And to have a wider reach in terms of sending messages to parents.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To facilitate operational efficiency and save administrative cost. And to be able reach our students' parents and receive quick feedback. To a moderate extent we are achieving some. But when we do send bulk message through sms, some might not be delivered to target parents.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: We expect to use it to the optimum in terms of automating every part of our operation, but the cost of full deployment and networking is not affordable for now. We expect to have ICT in all the classes – such as internet-connected interactive board to aid teaching. But the cost is still very exorbitant in Nigeria. But we cannot afford to have it in every class, because we cannot spread the cost and pass it to parents most of whom are very poor. We expect ICT to enhance the teaching and learning process in the school.

Q7. To what extent is ICT meeting those roles?

ANS: To a moderate extent, because the cost of full deployment is still unbearable. Hence, we cannot make full utilisation and meet all the expected roles we envisage.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: I personally studied and assessed what the school would need as far as ICT is concerned. We started it in a branch, and thereafter deploy across every branch of the school. I also offered the services to other schools around, help them develop their website, train their staff and network their schools.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: It was very tedious. For example in the past before we started using mobile phone to communicate and coordinate the school's activities, a driver taking the kids home after school could have problems on the way and get stuck. The parents would be worried. Some of them would even come to school to find out about their wards, travelling down for long distance sometimes. We would have to start tracing particular route(s) we thought the driver normally take to find out what the situation was. At the end of everything, everybody would be so tired and exhausted, wasting so much valuable man-hour resources. But now with the use of mobile, you could easily trace everybody's whereabouts and coordinate the school much more efficiently. Also you would have to be sending messages to parents, sometimes calling for meetings upon meetings before any major decisions that could affect their

wards educational development could be made. You would send letters to parents, maybe through their children, or by post. Some students would not deliver the letters and the ones sent by post could take days to reach the parents. Therefore managing the school was quite messy and very inefficient administration wise. Also for members of staff that needed to go on errands officially, you find it difficult to communicate with them in case of any emergencies, unlike now.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: There is a lot of improvement. It makes operation very easy. Students' learning has also improved somewhat because ICT makes it possible for them to see graphically what they are thought verbally. It eases staff communication as well communication with parents. It also aids teaching and learning quite significantly. It saves valuable time and reduces administrative costs to some extent.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Yes.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: Ease of administration, better communication, improved teaching and learning outcomes, time/cost savings. For instance, the Federal Govt recently declared a public holiday very late after the school had closed for the day and every student had gone home. We had to send bulk sms to every parent, telling them the school will be closed the next day. This would have been impossible to manage in the past when there was no mobile phone, and most kids would have turned up at school the next day.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: The issue of cost and affordability. Much of what we spend or will need to spend on ICT deployment in schools will have to be passed to the parents. So you have to consider if they will be able to afford it, considering their economic situation. So this has been mitigating the extent of ICT deployment we have in the school, and indirectly limiting the quality of exposure and ICT-aided instruction that the students could have.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a moderate extent.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Yes. Because we could only go as far as what the parents could afford in terms of ICT deployment in the school. And apart from affecting students' learning outcomes in some respect, it even makes us less competitive as a school among our peers. You even desire parents to have computer at home that the children could use for their homework and so on. But the parents cannot afford it.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Parent low income level and inability to support full ICT deployment in school as required for students' learning support.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a moderate extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: In the early 1990s. We started with capturing student's records as well as that of staff. Then we proceeded to using internet, computer to aid some aspect of our teaching process. Thereafter, we got official mobile telephone line for key members of the staff for administrative convenience.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS:

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Cost, illiteracy of the parent about ICT. Most of our students feel a bit inadequate as far ICT is concerned when they interact with their peers from schools with full ICT complements.

Interview 11 Transcript (Firm K)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**47**
Gender	**Male**
Your highest educational qualification(s)	**Msc in Marketing**
Company's Name	
Job Position/Title	**CEO**
Department	
Time with firm	**18 Years**
Time in position	**18 Years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Manufacturing**
Nature of business	**Produce cold water starch, Liquid detergent, Toilet Cleanser, Air Freshener**
Ownership	**Limited Liability Company with Four Directors including myself and my son**
Staff strength	**12 permanent, 20 temporary**
Staff range of educational qualifications	**SSCE, Msc**
Company's investment size (excluding land and working capital)	
Age of firm	**18 Years**
Company's location	**Shotimeyin Street, Papa Ajao, Mushin**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use mobile phone and visa phone. I register all my staff on group contract with visa phone for the mobile phone facility that will use to run the business. We also use the internet to communicate mostly with our suppliers, because most of our customers are petty market dwellers in the open market. Most of them don't have access to the internet. Even some of them that have internet facility on their mobile phone never use it because of their low level of education. So I contact them by phone, while I communicate with supplier and our bankers using the internet.

Q3. For what business tasks/operations/activities do you use ICT ?

ANS: We also monitor and manage our account online through internet banking.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: I look forward to a situation where all our operation will be automated, where we can just slot in raw materials and get finished products at the other end. There are companies that have got to that level, so we are also in the process of achieving that with the help of technology.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To facilitate business operations, and it is being achieved to some extent.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS:

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: There has been major improvement, especially in the area of communication with customers, staff and our suppliers. We used to rely so much in the past on analogue landline facilities, but we could only link up with very few of our customer who had access to it. Sometimes I wondered just how we were able to survive in the past without mobile or internet facilities, but we didn't feel there was any problem in

our mode operation then. Sometimes we had to visit every retailer in the market to know the quantity of any of our products they would order, chasing them around to collect our money as well. It is just now that we are experiencing major improvement in our mode of operation that we are regretting in retrospect not having mobile communication or internet facilities in the past. But we never felt we were missing anything because there was no alternative. For example we could go on business visit to some customers, either to collect our money or deliver some of our products, only realising when we get there that the person has travelled. We would feel bad then, but not as bad as thinking about such experience now. Because if it were to be now, we would have been contacted either by mobile phone or sms that the person would not be around, and that would save a lot of resources from being wasted. Now we could only reflect on much we have suffered doing our business at that period.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: We were incurring more cost then, especially in moving around to reach our customers for one business issue or the other or to collect certain information regarding business transaction that we might not even get. Now we can easily make calls in the comfort of our office or send an email with little or no cost and get the job done.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: It has improved the productivity in a great deal, at least in the area of operation cost reduction. It has also improved the quality of customer service and service delivery. Without much delay, one can attend to customers' requests, quarries or complaints nowadays. Unlike in the past when customers would have to wait till you come around before making their complaint or request. Customers can easily call you know to make a request or give you useful urgent information. For example a customer has called us recently when she suspected that some counterfeits/adulterated products are being sold in the market in our company's name. We were able to act immediately to get the culprits arrested.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: It is very significant contribution as stated above.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: We can reach more customers now with calls or test messages without incurring any cost, because text message on our mobile contract is free. So our operation/administrative cost has been reduced drastically in that area.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: We consider level of education, because most of our customers operate in the open market and are not well- learned. And we always call on our mobile phone if we want to communicate with them, because virtually all of them have access to mobile phone. But we are communicating or interacting with our banks or our major suppliers we use the internet facilities because they all have internet connection and dedicated personnel who attend to us through this medium.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a great extent.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Yes. Because if all our customers are learned/educated, we would spend less time and money on making calls and rather send bulk sms to them through their email contacts. But majority of them cannot read, so we need to call them on their mobile phones.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Level of education.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a very great extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: Accounting system, administrative function, sale/stock management.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: I initiated the computerisation/automation of our operation, because I saw the need to deploy them in terms of efficiency and ease of operation.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Network failure, you want to call somebody, even sitting beside you, you could hear the person is not available. Cost of maintaining computer. So many quacks parade themselves as experts in computer maintenance, but end up damaging your systems. And it is very expensive to hire the service of few competent hands in computer maintenance and repairs.

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**45**
Gender	**Male**
Your highest educational qualification(s)	**MSC**
Company's Name	
Job Position/Title	**CEO**
Department	
Time with firm	**1995**
Time in position	**Since inception**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Manufacturing**
Nature of business	**Children clothes**
Ownership	**One man business**
Staff strength	**11**
Staff range of educational qualifications	**Primary school, MSC**
Company's investment size (excluding land and working capital)	
Age of firm	**17 Years**
Company's location	**Surulere**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use the computer, internet and mobile communication. The computer is used for designs and for our internet operations. It is used for every aspect of our administrative function, such as typing letters to our customers, staff and suppliers and so on.

Q3. For what business tasks/operations/activities do you use ICT ?

ANS:

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: We expect it to reduce our cost and increase our profitability. It is also expected to facilitate communication with our clients/customers.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: We believe strongly that internet through our website would expand our reach and improve our company's profile. It is being achieved to a great extent, especially with the internet tools of facebook and twitter.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: Because we now practice cashless banking in Lagos state, internet is being used to facilitate payment by our customers. Customers who are indebted to us can now make payment online to our account wherever they are. Before, we had to find a way getting to them wherever they may be and claim our money. Mode of payment is now much easier. We can immediately check our account online to confirm their payment without to physically visit our bank. We save lot of time and cost in this process. When you consider some of our customers who are as far as outside Lagos who can now make payment to us online and we can confirm immediately, you could see how it has made life easier for us. They also send us their product request to our company's email, including any logo they want on the materials they want us make for them. Initially we would need to send a driver to them anywhere they are in the country to collect the logo from them, but now the just scan it to our email. So through the internet, our operations is run faster and we are saving a lot of resources which we normally expended in the past before the internet.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: We use the computer for designs on the clothes we want to produce and other clerical work. Then when the GSM was introduced in Nigeria, we started using to facilitate communication with our customers, to ask what products they need and they also reach us through the same medium. They used sms a lot to send us specification of the materials they want us to produce for them in terms of quantity, sizes, design and on. When the internet arrived, we started using to complement the mobile technology. Any design we do for customers, we would display it on our website including our other products as a form of advertisement for potential customers.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: It was manual and physical operation. Before GSM, our way of communication was to visit our customers anywhere they may be. We would go from place to place to look for prospective customers, sometimes we distribute handbills for this purpose. Sometimes we would distribute calendar as adverts with products displayed to prospective customers with the expectation that they would display the calendar in their homes and remember us whenever they need our

products. It was costing us so much money and time, because sometimes we could spend hours stuck in traffic, while trying to travel from place to place to attend to business issues. It was also affecting our health, because we had to be travelling to attend to some minor issues that could in the present day be sorted with just one minute mobile call. Besides, the number of current and potential customers we could reach and manage was limited, unlike now.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: It has made a positive impact to our business even beyond our imagination.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Yes.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: In terms of customer relations, it is easier for us to reach our customer now and vice versa. It is easier for us to make our products known than before. Our account monitoring/management used to be difficult. Then it was all physical cash collection, because we were always having issues with cheques not being honoured. We were always vulnerable to attack by armed gangs and always nurse a great amount of fear each time we moved from place to place to collect cash from customers. But now it is easier. Once we tell our customers our prices, and forward them by sms our account number or through the internet, they would just make payment. And as they are making payment, we are immediately getting an alert from our bank on our mobile phone as confirmation.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: We have issues with infrastructure here. Power supply is very erratic. These determine what we use. Sometimes, we would want to send information/product design through the internet and there would not be electricity to power the system. So we would be forced to use our mobile phone, even though the message would be delivered better through the internet. Then poverty issues, the cost of internet connectivity for all our staff is still very prohibitive. Sometimes we would need to manage just one computer as an outfit. This sometimes affects our performance, as we are limited on what we can achieve. We have estimated the cost of networking and automating every aspect of our business activities, but found the cost so

unbearable for us as a small company, because our customers might be discouraged from patronizing us if we have to spread the cost on our products. Hopefully as cost of networking and internet connectivity in Nigeria becomes more affordable, we would be able to leverage more broadband facilities. Also level of education of our customers is given consideration. We have a diverse customer base from different educational and social background with respect to ICT habit. We have some customer (especially corporate bodies such as coca cola, globacom) who are online 24/7 and could relate with any medium on the internet. We also have some educational institutions as clients – some are online and are interacted with through the internet while some are not, and we use both the mobile communication and internet in dealing some of them. And we have some (especially our individual customers) who could only be reached through mobile phone. So we interact with each group through the appropriate medium.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a great extent**.**

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Definitely. Because we know the huge impact internet facility usage is having on our business, if the cost is affordable to all and sundry, the impact could only be more visible.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Level of education**.** High cost of obtaining internet connectivity and low purchasing power of some our customers, infrastructural challenges – erratic power supply.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: To a great extent

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: In 2000, customers service, product design, accounting management, administrative functions and product marketing/advertising.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: Myself. Because it is basically a one man business, I practically drive the usage as well.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Unreasonable charges by mobile phone providers, few of our staff because of their low level of education can't use the internet or the computer.

Interview 13 Transcript (Firm M)

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**43 years old**
Gender	**Male**
Your highest educational qualification(s)	**PhD**
Company's Name	
Job Position/Title	**Proprietor/Founder**
Department	**Management**
Time with firm	**Since Inception in 1996**
Time in position	**16 years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Educational Institution**
Nature of business	**Primary, Secondary Education as well as Training services**
Ownership	**Sole Proprietorship with Board of Directors**
Staff strength	**107**
Staff range of educational qualifications	**Secondary School Certificate to Masters Degree in Education. Majority of Staff have Bachelor Degree in Education**
Company's investment size (excluding land and working capital)	
Age of firm	**16 years old**
Company's location	**Low Income area of Bajulaye in Bariga, Lagos State**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We rely most on mobile telephone, especially for communication at operational level with staff as well as for strategic communication with our stakeholders such as our bankers with respect to getting update concerning our financial position for planning purposes. We also use mobile communication for regular contact with our customers – parents of our students. Besides we also make use of computer and internet to some extent for our daily operational/teaching activities.

Q3. For what business tasks/operations/activities do you use ICT ?

ANS: We use communication technology for a lot of activities such as: To be in constant touch with parents, support services providers and local educational authority; to be in constant interaction with our bankers for regular updates on our company's financial position – this provides strategic advantage for operational planning; And to support operational/teaching activities.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: Basically to facilitate communication because 'information is power'. If there is timely flow/dissemination of information to appropriate recipients, necessary actions can be expected. But if communication flow is impeded, you can expect some dysfunctional situations. Therefore, it is the delivery of information at the right time to the right person/contact that is very crucial to our survival as an organisation, and this is what we expect communication technology to facilitate. For example, we schedule educational trips from time to time, and rather than relying on hard copy information to inform parents, we also text to remind them (parents) about the trip. This is very effective because almost everybody nowadays rely on mobile comunication, it is easier for us to get quick response from parents. Hence, we have a good idea of how many students are gong on a particular trip on time, and this makes it easier for us to plan our logistics.

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: Perhaps in future, we might be looking at enhancing more on what we do, so that the interaction can go beyond 'text messaging' and 'phoning' and move on to use of website and internet communication for teaching and learning support. However, that will be a function of how much our customers are able to leverage on the use of internet. It would be pointless nursing that objective now when the majority of our customers are not attuned to use of internet. But we do hope that in future, we can have a situation whereby most of communication and interaction with the parents and other customers or stakeholders will be done via internet. At such a

point, our objective will be to provide internet facilities ready-made in our organisation to facilitate cogent communication between us and our customers. So in terms of objective, it is still a long-term one, but we would want more communication because our business relies more on it, most especially because the students cannot take decisions on their own, the decisions come from the parents and if you don't get information from the parents on time, everything could come to a standstill.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: Maybe in future as well, coming from the background that we have in Nigeria, Lagos state to be specific. Maybe in future when electricity is much more stable, when internet facility becomes much more available, then it can be used more in teaching and learning. We use it for teaching and learning now, but not as integrated as one would have expected it to be. Maybe in future, a lot more internet facilities can be used, a lot more online tools and aids to learning that are available on the internet can be tapped into. Then students – both at primary and secondary school levels can benefit from that a lot more.

Q7. To what extent is ICT meeting those roles?

ANS: Yes but not sufficiently enough. Yes we use computer and internet, but you would expect that in this day and age, students would have a lot easy access to

internet, a lot easy access to computer. In the developed world, you have almost one computer to one student. In our own environment, it is not like that. Maybe you are talking about ratio 1 to 10. One computer to ten students! That's not acceptable. So in terms of what it is doing now, it is allowing us to communicate, to use the internet but not as much as we would want. So in future, we want a situation whereby a student to a computer, a lot more access to internet, a lot more interaction with the internet and by the students themselves – both with the school as well as from home.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: At the inception, it was a small organisation with just five students, so there wasn't any need for any form of communication technology. Infact, in Nigeria then, there wasn't any mobile communication technology. Internet was not even thought of. Even in the developed world, it was not so commonplace as it is today. People that had mobile communication technology in Nigeria at that time were seen as the high class. But later on as the country developed around 2000, 2001, we started having mobile communication, with Global System of Mobile communication (GSM) coming to Nigeria the market. We started to use it as an organisation to aid communication with our staff and customers, because by 2003, we expanded our operations and opened new branches in Surulere and Epe. Mobile communication technology became very useful to us in this respect. Then with the internet becoming

common later in the year - 2005, 2006, we started to deploy internet facility gradually into our operations. So because mobile communication technology was becoming a lot much easier to access in Nigeria, it was easier for us to now deploy it more than previously. It (communication technology) has had a huge influence/impact in our operations because ability to communicate with parents, staff and other stakeholders swiftly, fast and more clearly is something you cannot put a price on. Ability to get information across to your staff, even at odd hours cannot be priced. Just last week, we saved ourselves about N50.000 just because we could communicate fast a piece of information that was not there, that we were not aware of. Somebody called us and said this was going to happen. We then quickly moved in and saved that from happening. Also, our school recently had an inter-house sport. You cannot imagine the amount logistical planning that went into that. But with communication, it was a lot easier. Yes it is making a huge impact in our operations.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: It seems to be that if you don't have something, you will not know that you are missing it. When we didn't have mobile telephone or GSM, we didn't think we missed it. But when we started to use it, not having it in retrospect left a huge gap. If we had had it then, perhaps our operations would have been a lot much smoother, faster and a lot more efficient. But then, it was more of we were restricted in terms of fast communication. You only communicate when you see. It is now that we can flash back and say well, this is what we were missing. And in terms of swiftness and

efficiency of communication, cost efficiency in terms of printing less information out in papers to students to deliver to their parents. You cannot really value some of these things. There is a wide gap between the customer satisfaction that we have now compared to pre-ICT period.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: I think there is a lot we have gained. Recently we had a parent-teacher meeting, and we did a feedback on how they (parents) see the organisation – how they think we respond to them. A lot of them felt we have a quick response to complaints/concerns. And that is because if parents have any issue(s), they can 'text' with their mobile and then we call them instantly. In the past, when parents had issues, they had to come to the school, and wait to see a particular teacher. But with communication technology nowadays, they could be anywhere doing whatever they are doing and communicate with us simultaneously. So they feel satisfied and we feel satisfied as well. Also, the number of complaints has reduced. Complaint ratio per month or term has reduced drastically compared to the pre-ICT era. Students' performance has also improved as well because if a child is not performing satisfactorily in school, we could quickly call the parent and intimate them. Besides, any other unbecoming attitude pertaining to a particular student/child could be quickly nipped in the bud before it becomes a major source of concern because parent could easily be contacted.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: I think they do make important contribution, but whether they are significant or not is another issue. It is difficult form me to say. The difference/contribution will be significant if majority of the parents have access to ICT and communication facilities, and then we are able to communicate a lot more. Although majority of them have mobile communication, but we are looking at situations whereby they can do more than that. If in terms of reduction in complaint level, performance improvement, we can say it's been significant. But in terms of aiding teaching and learning, perhaps we need much better environment. That will be possible when we have the infrastructure to support that in our environment: regular electricity, more availability of computer, easier access and so on.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: We are much better at communicating with parents, much better at responding to their needs, and therefore we are much better in terms of customer satisfaction. Also, we've seen increase in the students' performance because we can communicate quickly with the parents, there's opportunity for us to feedback to them in terms of their wards/children's performance. This has reflected in improved students'

performance. Retention of students has also increased. That is because of the satisfaction from the parents. So we can say students that join us from primary level stay through their secondary school education. We have also seen a lot of improvement in level of interaction with our stakeholders. For example we can communicate with our bankers more efficiently. We can also get regular updates about our financial positions from our bankers. This enhances our planning strategy and therefore boosts our financial performance.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: It is more about literacy level. Being in that type of environment, not many people are very educated or well read. Second, the level of poverty – the income level is very low, so ability to explore communication facility or technology is limited. The other thing is weak infrastructural support such as electricity as well as the lifestyle of people around here. It is more of a noisy, loud lifestyle, so it is possible for you to have music being to the highest volume possible around you. These affect the adoption of ICT because you always feel how can I use ICT effectively in this type of environment?

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a very great extent, because if my customers don't have the literacy level to use internet, I can't adopt/use internet in communicating/interacting with them, because they wont understand it. Also if my customers don't have disposable income to procure desktop and connect to the internet, and I adopt internet, it is not going to be very useful for us. Also if there is no electricity to support the use of these things, it is not going to work. What is easiest for majority of our people/customer now is mobile communication and other facility you have on it such as 'text messaging'. That's what defines our choice/usage, that's what is supported by the environment where we operate. And that is why mobile telephony is what we deploy in great deal in our operations. When the time comes, and there are infrastructural facilities and so on to support the use of more advanced ICT, they will be deployed. In other words, their adoption will be determined by our environment.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: They do a great deal. Our desire to explore every possible ICT's capacity to boost our business performance is limited by our customers' literacy level, poverty level as well as other environmental factors. We are responsive to customers. If our customers are not able to use them, we are not going to push them to using them, otherwise it may have backlash. But the one they can use more conveniently and easily, those are the ones that we are actually using most to interact/communicate with them.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: They are low literacy level, poverty level, weak infrastructural support such as electricity and so on.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: I think to a great extent. For example, if it were an environment where our customers could use internet effectively, it would be proper for us to aid learning and teaching with internet facilities. And that of course could improve retention rate, improve performance of our students and might also improve our financial positions as an organisation.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

Q19. Who initiates ICT deployment in your company and drives its usage?

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

TOPIC GUIDE FOR SEMI-STRUCTURED INTERVIEW

Exploring and Determining: Technology nature, expectation, impact and context

Q1. Kindly supply the following details about yourself and the company.

Yourself	
Your name	
Age	**41**
Gender	**Male**
Your highest educational qualification(s)	**MSC**
Company's Name	
Job Position/Title	**General Manager**
Department	
Time with firm	**15 Years**
Time in position	**8 Years**
Telephone Contact Number	
E-mail Contact	
Company	
Type of company	**Importation**
Nature of business	**Trading, importation of agro-chemicals newsprints and so on.**
Ownership	
Staff strength	**21**
Staff range of educational qualifications	**OND, Msc**
Company's investment size (excluding land and working capital)	
Age of firm	**25 Years**
Company's location	**Papa Ajao, Mushin**

Q2. What internet-based, mobile or any other business support communication technology do you use to support your company's operations, and how do you use them?

ANS: We use fax machine and normal telephone in the past, to make order from overseas and communicate to our customers. Now we use computer, email and mobile phone for all these.

Q3. For what business tasks/operations/activities do you use ICT ?

ANS: We use computer for invoicing, administering supply and receiving of goods and also for stock management.

Q4. What are your expectations from the ICT you are using to support your company's business?

ANS: To facilitate or reduce time we spend in processing our transaction. When we send emails to customers or call them by phone, we get quicker response/feedback than we used to experience in the past

Q5. Are there any specific objective (s)/purpose you intend to achieve as a company from using ICT? To what extent are those objectives achieved?

ANS: To achieve improved sales volume and improve customer relationship management.

Q6. What role do you expect ICT to play in boosting your company's performance and making it more productive and efficient in both back and front office operations?

ANS: Stable signal/services to prevent occasional interruption in online transaction/activities.

Q7. To what extent is ICT meeting those roles?

ANS: To a very great extent.

Q8. Could you give a brief account of your company's developmental phases from inception till date? Explain your use of ICT consultancy services, kind(s) of ICT systems that have been deployed at every stage and their influence on business performance.

ANS: We started using mobile and internet not long ago. In the past when customers come, we would write invoices, generate order manually – so much delay in the process. Much time wastage. But it is much easier and faster doing all these on the computer. We already have templates for virtually all administrative documentation on the computer, so it is much faster and easier to generate order, report or manage our customers. We also experience more business volume nowadays because we are

able to generate improved business volume from places beyond our area of operation through our website.

Q9. How did your company run its business activities in the past when there was no ICT support?

ANS: It was all manual. We are able to spend less on staff cost nowadays, because I am able to accomplish more tasks alone with the use of computer unlike in the past when you had to engage more hands. We were using landline to call our suppliers abroad and make orders when there was no internet. But we use internet now and it is much faster and quicker.

Q10. In your opinion, how would you assess the contribution of ICT to your business overall performance now in comparison to the pre-ICT deployment/usage era?

ANS: It has added value beyond what we expect and better than when we were using fax machine and landline to process our business transaction.

Q11. Do you believe current adoption/use of ICT makes a significant difference to your company's business performance compared to your experience before its deployment/usage? If so, how?

ANS: Yes.

Q12. In what specific ways is your company more productively efficient as a consequence of ICT adoption/deployment/usage compared to the pre-ICT experience?

ANS: It has reduced the amount of paperwork we use to generate in the course of our duty, and saved some cost in this regard. Unlike in the past you could hours manually writing invoices to customers, but now you just generate them in a jiffy from your computer.

Q13.What factor(s) in your local operating environment/context do you consider or think about when deciding what form of communication technology to use in your business activities?

ANS: Most of our customers don't have internet facilities, so we always interact with them trough mobile communication, because it would be useless using internet to reach them when don't use it themselves. Most of them are not literate, and even those that are literate do not have internet access.

Q14. To what extent do local factors influence choice of ICT used by your company?

ANS: To a greater extent.

Q15 Do you believe local factors affect ICT impact in facilitating your firm's business performance? If so, how?

ANS: Not much. In our own kind of business, when dealing with our customers, the major thing is to deliver the goods to them. In this respect, the fact that they do not have internet access does not affect our performance much negatively. We can always call their mobile phone and arrange delivery of their order to their doorstep.

Q16. What specific local factor(s) affect ICT impact in facilitating your firm's business performance?

ANS: Level of education.

Q17.To what extent do you believe local factor (s) affect ICT impact in boosting your firm's business performance?

ANS: Very little extent.

Q18. When did your company first start automating its business operations and what specific tasks/business functions were automated?

ANS: For communication with customers, suppliers and staff. We use computer to manage our stock and order for goods through the internet from our suppliers.

Internet to shop around for the best value for money as far as ordering goods is concerned.

Q19. Who initiates ICT deployment in your company and drives its usage?

ANS: From the management. They believe it would help ease our business process and improve our standard as a company.

Q20. What common challenges/problems do you experience in using ICT to facilitate your company's business performance?

ANS: Failure signals and poor services by the IT providers. Occasional signal failure affects our online transaction sometimes.